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QUARTERLY INDUSTRY REPORT

3 Markets for Financial and Legal Printing

9 Regional Impact of U.S. Graphic Arts Exports

17 Printing and Publishing in West Germany

U.S.
DEPARTMENT
OF COMMERCE

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FINANCIAL AND LEGAL PRINTING HITS THE ONE BILLION DOLLAR MARK

By Rose Marie Zummo Bratland

The U.S. market for financial and legal printing will total over a billion dollars in 1979, based on current trends. Since 1973, receipts for this commercial printing sector have doubled and climbed at a faster rate than total commercial printing receipts.

Financial and legal printing is one of five basic product groups of U.S. commercial printing (Standard Industrial Classification 275). Its receipts accounted for between 5 and 6 percent of all commercial printing over the past decade (1968-78) and have increased at about a 14 percent average annual rate in the last 5 years compared to an 11 percent average per annum gain for U.S. commercial printing product receipts.

Products manufactured by the lithographic process account for nearly two-thirds of all financial and legal printing while the remaining one-third are by letterpress. Prior to 1971 more than half of all financial and legal printing product shipments were manufactured by letterpress.

Industry Structure

Letterpress and lithographic printers account for about 94 percent of total U.S. production of financial and legal printing. The remaining 6 percent is done by industries outside the commercial printing field, primarily by manifold business form producers. (See table 2.)

The number of commercial printers whose primary printing activity is legal and financial printing declined from 575 in 1963 to 265 in 1972. Whereas, in 1963 firms engaged in legal and financial printing represented about 3 percent of all commercial printers, by 1972 they were about 1 percent of the total. More than two-fifths of these firms in both 1963 and 1972 were specialized to the degree that 75 percent or more of their output was financial and legal forms. These highly specialized plants accounted for 43 percent of the total receipts for establishments whose primary product was financial and legal printing in 1972, compared to 34 percent of the total in 1963.

Among establishments whose primary product was legal and financial printing in the period 1963-72, those which used the lithographic process showed stronger growth in value of receipts than did those using letterpress. Lithographic establishments had receipts of $247 million in 1972, up an average annual rate of 9.5 percent over the 1963 level and up 13.4 percent per annum since 1967. Receipts for letterpress firms amounted to $150 million in 1972, an average annual gain of 5.1 percent above 1963, but an average yearly increase of only 1.0 percent since 1967.

Letterpress firms whose output was 75 percent or more financial and legal printing had a greater dollar volume in 1972 than lithographic plants. However, since 1967 the value of receipts generated by the lithographic plants more than doubled while receipts of these highly-specialized letterpress firms grew by only 35 percent.

Although letterpress has lost some of its market share of financial and legal printing to lithography over the past decade, it continues to display steady growth in plants whose production is 75 percent or more financial and legal printing. However, in two significant productivity measurements, letterpress did not compare favorably with lithography even in the highly specialized plants. In lithographic establishments, value added per employee averaged $20,692 in 1972 as opposed to $16,875 for letterpress plants. Value added per worker-hour in 1972 stood at $14.16 in lithographic plants and at $11.07 in letterpress establishments.

Product Trends

Data in table 4 reflect product coverage by the Bureau of the Census in the *Census of Manufactures* for the years 1963, 1967 and 1972. This data includes not only legal and financial printing product receipts of commercial printers, but receipts of establishments classified in other industries.

While letterpress printers dominated the legal and financial printing market in both 1963 and 1967, by 1972 lithographic printers shipments had outpaced them by more than $80 million, with receipts totaling $271 million. Lithographic financial and legal printing grew at an average annual rate of 14.5 percent in the 1967-72 period, while letterpress product receipts rose only 4.4 percent per year.

Accounting for the surge in lithographic printing of legal and financial forms was the 22.4 percent annual growth rate in the 1967-72 span in product categories which include SEC filing and prospectuses (SIC 27524-11); annual reports and other corporate financial printing forms (SIC 27524-13); and other financial and

legal printing, including insurance forms, security certificates and briefs (SIC 27524-19).

Largely accounting for the declining market share in letterpress printing of legal and financial forms was a drop in the per annum rates of change for bank and bank form printing (SIC 27514-25 and SIC 27514-27) in the second half of the 1963-72 span. Even bank and bank form printing by the lithographic process fared better during the 1963-67 period than in 1967-72. The downward trend in both letterpress and lithographic printing of bank forms may indicate that banks themselves are doing more of their own printing or that forms previously classified in this product grouping are now classified as business forms because of changes in design. Preliminary *Census of Manufacture* data for 1977 will be released on this product group in the next several months and will lend perspective on more recent developments in the various product categories.

Regional Production Patterns

Legal and financial printing by both letterpress and lithography showed shifting patterns of geographic concentration. The Northeast Region ranked first in its share of total legal and financial printing receipts in 1972, accounting for 39 percent of the U.S. letterpress market and 41 percent of the lithographic market. However, in the 1967-72 span the Northeast's share dropped from 43 to 39 percent of the letterpress market, while its share of the lithographic market expanded from 37 to 41 percent. The South ranked second in letterpress receipts in 1972; the North Central was second in lithography revenues; each captured 24 percent of their respective U.S. markets for legal and financial printing.

In spite of its favorable lithographic market position, the North Central Region was the only area in the 1967-72 period to show a market loss in both its letterpress and offset printing of legal and financial forms. Letterpress receipts in this region dropped from 24 to 19 percent of the U.S. total, while lithography sales fell from 30 to 24 percent. The West region, which ranked last among the regions in its share of both the letterpress and offset markets, was the only region to increase its share of both these markets in the 1967-72 period. The West's letterpress printing of legal and financial forms showed the greatest growth in market share of any region, expanding from 12 percent in 1967 to 18 percent in 1972.

New York was the largest producer of legal and financial printing by both printing processes in 1972, accounting for more than one-fourth of all legal and financial printing. Combined receipts from New York, California and Illinois amounted to nearly one-half of all legal and financial printing receipts. These three States represented 53 percent of total lithographic receipts and 38 percent of letterpress receipts.

In those States where data were available both for 1967 and 1972, nearly half showed losses in their value of letterpress receipts. Only two of these States experienced drops in their lithographic receipts during the same period. In fact, lithographic revenues grew at average annual rates exceeding 15 percent in more than one-fourth of these States during 1967-72 period.

Favorable Prospects

Given the strong pace of legal and financial business activity in the economy, the market for legal and financial forms should grow at an average yearly rate of about 12 percent through 1983.

Lithographic printing will continue to make inroads into the letterpress printing market, but at a more moderate rate than in the early 1970's. About two-thirds of all financial and legal printing will be by the lithographic process, with the remaining third being done by letterpress.

Some of the legal and financial forms now being produced by commercial printers could become obsolete as the forms processing requirements of legal and financial organizations become more sophisticated. Already, greater use of more complex processing equipment in banks has changed the forms needs of these institutions. This trend could have a notable impact on the size of this sector of the commercial printing industry, and could benefit the business forms industry which would provide many of the more sophisticated forms.

Table 1.—U.S. Financial and Legal Printing Product Receipts, 1963-79

Year	Total (million $)	Letterpress (million $)	Percent of total	Lithographic (million $)	Percent of total
1979[1]	$1,001.0	n.a.	n.a.	n.a.	n.a.
1978[1]	896.0	n.a.	n.a.	n.a.	n.a.
1977[1]	802.0	n.a.	n.a.	n.a.	n.a.
1976	718.3	$271.4	37.8	$446.9	62.2
1975	669.3	262.1	39.2	407.2	60.8
1974	580.4	226.9	39.1	353.5	60.9
1973	469.9	176.6	37.6	293.3	62.4
1972	461.2	190.1	41.2	271.1	58.8
1971	372.8	201.5	54.1	171.3	45.9
1970	369.2	191.2	51.8	178.0	48.2
1969	388.5	216.6	55.8	171.9	44.2
1968	340.7	190.2	55.8	150.5	44.2
1967	290.6	152.9	52.6	137.7	47.4
1966	266.8	145.3	54.5	121.5	45.5
1965	234.9	124.3	52.9	110.6	47.1
1964	216.1	108.1	50.0	108.0	50.0
1963	220.2	111.3	50.5	108.9	49.5

n.a.—Not available.
[1]Estimated by U.S. Department of Commerce, Bureau of Domestic Business Development.

Source: U.S. Department of Commerce, Bureau of the Census.

Table 2.—Industry—Product Analysis for Financial and Legal Printing, 1963-72

(millions of dollars)

Products	All industries	Commercial printing, letterpress (SIC 2751)	Commercial printing, lithographic (SIC 2752)	Engraving and plate printing (SIC 2753)	Commercial printing, gravure (SIC 2754)	Manifold business forms (SIC 2761)	Other industries
Financial and legal printing, letterpress:							
1972	190.1	126.1	49.5	(under 2)	(under 2)	2.8	11.0
1967	152.9	112.7	27.6	(under 2)	([1])	2.3	(5-10)
1963	111.3	83.1	19.8	1.4	([1])	1.3	5.0
Financial and legal printing, lithographic:							
1972	271.1	(10-20)	241.3	(under 2)	(under 2)	(2-5)	9.7
1967	137.7	18.4	110.3	—	n.a.	4.3	4.7
1963	108.9	13.6	87.4	2.0	n.a.	2.2	3.5

Note: This table shows what industries produce financial and legal printing products.
Data shown parenthetically are ranges expressed in millions of dollars.
—Represents zero.
[1]Prior to 1972 SIC 2754 was included under SIC 2751, Commercial printing, except lithographic.

Source: U.S. Department of Commerce, Bureau of the Census.

Table 3.—General Statistics for U.S. Financial and Legal Printing Establishments, 1963-72

Product class code	Description	Number of establishments	All employees		Production workers			Value added by manufacture (million $)	Cost of materials (million $)	Value of receipts (million $)	Capital expenditures (million $)
			Number (1,000)	Payroll (million $)	Number (1,000)	Worker-hours (millions)	Wages (million $)				
	Establishments whose primary product is financial and legal printing:										
27514	Letterpress:										
	1972	116	6.4	58.3	5.1	9.7	42.2	110.3	41.4	150.1	5.2
	1967	175	8.4	58.9	6.7	13.0	49.2	101.0	43.6	142.8	6.5
	1963	347	7.5	44.4	6.0	11.7	33.1	68.3	27.9	95.9	2.8
27524	Lithographics:										
	1972	149	8.7	99.3	6.4	12.6	65.9	178.1	69.6	246.9	5.4
	1967	124	6.4	49.0	4.6	9.4	32.4	85.0	47.4	131.9	4.6
	1963	228	6.8	41.5	5.1	10.2	28.4	72.0	37.7	109.5	4.0
	Establishments whose output is 75% or more financial and legal printing:										
27514	Letterpress:										
	1972	69	4.0	33.7	3.3	6.1	25.2	67.5	27.4	94.3	3.7
	1967	91	3.9	29.3	3.2	6.5	21.7	51.2	19.5	69.6	1.4
	1963	165	3.7	21.7	3.0	5.9	16.3	33.1	12.2	45.4	1.4
27524	Lithographic:										
	1972	44	2.6	29.2	2.0	3.8	20.8	53.8	22.7	76.9	2.2
	1967	37	1.6	10.5	1.2	2.3	7.3	18.3	11.5	29.8	1.4
	1963	79	1.6	10.0	1.2	2.5	4.4	15.7	8.8	24.5	1.6

Source: U.S. Department of Commerce, Bureau of the Census.

Table 4.—U.S. Financial and Legal Printing Product Shipments, 1963-72

(Millions of dollars)

1972 product code	Product	1972	1967	1963[1]	Average annual rate of change (percent)		
					1963-72	1967-72	1963-67
27514- -	Financial and Legal Printing, Letterpress	190.1	152.9	111.3	6.1	4.4	8.3
2751411	SEC filing and prospectuses	24.8					
2751413	Annual reports and other corporate financial printing	12.8	72.8	58.0	6.2	6.5	5.9
2751419	Other financial and legal printing, including insurance forms, security certificates, briefs, etc.	62.1					
2751425	Bank printing, including deposit slips, counter checks, business checks, imprinting of bank checks, etc., but excluding checkbooks	60.1	53.2	28.7	8.6	2.5	16.7
2751427	Bank form printing, including printing of passbooks, debit and credit slips, ledger and statement sheets, installment-loan coupon books, etc., but excluding checkbooks	7.6	16.7	10.6	−3.7	−14.6	12.0
2751400	Financial and legal printing, letterpress, not reported separately	22.7	10.2	14.0	5.5	17.3	−3.2
27524- -	Financial and Legal Printing, Lithographic	271.1	137.7	108.9	10.7	14.5	6.0
2752411	SEC filing and prospectuses	60.4					
2752413	Annual reports and other corporate financial printing	64.4	68.2	48.7	16.1	22.4	8.8
2752419	Other financial and legal printing, including insurance forms, security certificates, briefs, etc.	62.6					
2752425	Bank printing, including deposit slips, counter checks, business checks, imprinting of bank checks, etc., but excluding checkbooks	41.4	49.4	42.8	−0.4	−3.5	3.7
2852427	Bank form printing, including printing of passbooks, debit and credit slips, ledger and statement sheets, installment-loan coupon books, etc., but excluding checkbooks	22.4	16.8	10.2	9.1	5.9	13.3
2752400	Financial and legal printing, lithographic n.s.k.	19.7	3.3	7.2	11.8	43.0	18.0

n.s.k.—not specified by kind.

[1]Several product classifications for financial and legal printing established in 1963 and more detailed product data published in 1972.

Source: U.S. Department of Commerce, Bureau of the Census.

Table 5.—Value of Receipts for Financial and Legal Printing, by Geographic Area: 1958-72

(Millions of dollars)

Geographic Area	Letterpress			Lithographic		
	1972	1967	1963	1972	1967	1963
United States	$190.1	$152.9	$111.3	$271.1	$137.7	$108.9
NORTHEAST REGION	74.4	65.4	46.1	111.2	50.5	42.8
New England division	16.5	12.3	8.7	21.0	14.9	10.4
Massachusetts	12.7	9.6	6.3	15.8	11.1	8.6
Connecticut	1.8	1.8	1.6	3.0	2.2	1.3
Middle Atlantic division	57.9	52.9	37.4	90.3	35.6	32.4
New York	42.6	40.3	29.8	75.3	25.6	23.2
New Jersey	8.0	4.9	2.0	2.6	1.7	1.9
Pennsylvania	7.3	7.7	5.7	12.4	8.3	7.3
NORTH CENTRAL REGION	36.0	36.5	30.9	66.0	41.5	30.6
East North Central division	27.3	25.7	24.4	54.1	31.7	22.9
Ohio	9.0	3.3	4.4	8.9	3.2	3.3
Indiana	1.9	3.6	4.3	4.4	2.9	(X)
Illinois	12.7	13.8	11.7	33.8	19.3	13.6
Michigan	3.4	3.5	3.4	3.7	4.5	3.5
Wisconsin	(X)	(X)	(X)	3.2	1.8	1.5
West North Central division	8.6	10.8	6.5	11.9	9.8	7.7
Minnesota	1.4	(N.A.)	(X)	3.5	(N.A.)	(X)
Missouri	2.3	5.1	2.8	2.6	2.9	2.1
Nebraska	(X)	(X)	(X)	1.1	(X)	2.0
Kansas	3.9	1.2	1.4	(N.A.)	3.8	2.3
Iowa	(X)	1.6	(D)	(X)	2.0	(D)
SOUTH REGION	45.1	33.1	20.9	49.3	26.7	21.2
South Atlantic division	31.9	19.2	11.2	18.0	11.1	10.9
Maryland	4.5	5.1	2.1	5.6	4.0	3.5
District of Columbia	(X)	(X)	1.3	1.6	(X)	(X)
Virginia	2.0	2.2	(X)	(X)	(X)	(X)
North Carolina	BB	(2.6)	1.4	1.7	(X)	2.2
South Carolina	BB	(N.A.)	(X)	(X)	(X)	(X)
Georgia	10.3	3.1	2.2	2.4	1.9	(X)
Florida	8.8	5.1	2.6	4.5	2.0	3.0
East South Central Division	5.5	4.1	3.0	10.6	6.3	3.6
Kentucky	1.7	1.8	(X)	3.4	2.9	1.9
Tennessee	2.5	1.6	1.4	4.0	1.8	(X)
Alabama	(X)	(X)	(X)	2.3	1.4	(X)
West South Central	7.8	9.1	6.7	20.7	9.3	6.7
Louisiana	AA	1.2	1.0	1.2	(X)	(X)
Oklahoma	(X)	(X)	(X)	1.4	(X)	(X)
Texas	5.4	6.7	4.5	17.6	8.6	5.3
WEST REGION	34.6	17.9	13.4	44.6	19.0	14.3
Mountain Division	EE	5.9	3.6	5.0	7.2	5.8
Colorado	CC	2.7	(X)	3.5	2.7	2.0
Arizona	BB	1.1	1.0	(X)	(X)	(X)
Utah	CC	2.0	1.2	(X)	(X)	1.2
Nevada	BB	(N.A.)	(X)	(X)	(X)	(X)
Pacific	EE	12.0	9.8	39.6	11.8	8.5
Washington	(X)	(X)	1.5	1.2	1.1	1.9
Oregon	(X)	(X)	(X)	1.4	N.A.	(X)
California	16.6	10.5	7.5	35.8	10.0	5.9
Hawaii	(X)	(X)	(X)	1.2	(X)	(X)

Note: For some areas, exact figures are withheld to avoid disclosing figures for individual companies. The values are shown in ranges for those States where product-class shipments of $1 million or more were reported. Following are the symbols and the value ranges (in million dollars) they represent:

AA.....$1.0-$1.9
BB.....$2.0-$4.9
CC.....$5.0-$9.9
EE.....$10.0-$19.9

(NA) Not available. (X) Not applicable. (D) Withheld to avoid disclosing figures for individual companies.

Source: U.S. Department of Commerce, Bureau of the Census.

EXPORTS: VALUE TO U.S. GRAPHIC ARTS INDUSTRY

By William S. Lofquist

Although U.S. exports of printed products climbed from $334 million in 1970 to $841 million in 1978, the development of export markets continues to rank as a low priority among most U.S. printers and publishers. Less than 2 percent of total U.S. graphic arts output is destined for overseas markets.

Yet for certain graphic arts companies, foreign trade is of strong importance. Publishers of U.S. books and magazines, for example, frequently show export sales accounting for 10 to 20 percent or more of total company output. And, since many of these export-oriented U.S. publications contain knowledge and information relating to U.S. products, services, and technical expertise—and directly encourage foreign purchases of these items—it becomes clear that the comparatively low volume of U.S. printed product exports has a residual importance far greater than the statistics suggest.

Beyond this intrinsic value of U.S. books and magazines, the Bureau of the Census has released an analysis of the role exports play in the total U.S. manufacturing picture.

Review of the Census Report

Based on 1976 statistics for U.S. value of shipments and employment, the Bureau of the Census and the Bureau of Economic Analysis combined efforts to determine the extent of exporting efforts among U.S. manufacturing industries. Firms reporting in the Census program's Annual Survey of Manufactures were requested to report the value of products shipped for export. Firms were requested not to include products shipped for further manufacture, assembly, or fabrication in the United States.

The Bureau of the Census recognized that this procedure had certain unavoidable shortcomings that understated the true value of all U.S. exports. For example:

1. Many respondents do not know the final destination of their products.

2. Firms exporting less than $25,000 of U.S. exports were not asked to report their actual export sales.

Item 2, above, has special significance for the U.S. graphic arts industry. The industry is populated by small firms—80 percent of the 40,000-plus U.S. printing and publishing establishments have less than 20 employees—and getting an export measure on this broad and diverse industry presents certain difficulties. For example, in its monthly compilation of statistics on U.S. imports and exports of printed products, the Bureau of the Census excludes individual shipments valued under $250.

According to the Census survey, the value of printed product exports directly reported by U.S. printers and publishers in 1976 came to $387.6 million. However, the use of shippers' export declarations supplied by Census' Foreign Trade Division yields an "estimated" export value for the U.S. graphic arts industry of $664 million, two-thirds higher than the "directly reported" value of $387.6 million. But even this $664 million figure is not fully indicative of the export contribution of printed products to the U.S. economy.

In order to obtain a more accurate statistical measure of U.S. graphic arts export activities, the data were subjected to an input/output analysis using information supplied by the Bureau of Economic Analysis. This analysis revealed that even the adjusted export estimates put forth by the Bureau of the Census tend to understate the importance of export trade for the domestic economy. Such export figures exclude, for example, the output of the supplying establishments that furnish parts or materials to the manufacturer producing the product exported. As but one example, the millions of dollars of printing done for U.S. book and magazine publishers does not appear as export-related. By including these direct and indirect requirements, the "ultimate" value of U.S. printed product exports to the U.S. economy would have been approximately $1.3 billion in 1976, virtually double the Census survey reported exports of $664 million. By extrapolation, 1978 printed product exports of $841 million would result in an estimated value to the U.S. economy of about $1.7 billion.

Graphic Arts Exports, by Industry Sector

As noted above, the value of U.S. exports of printed products in 1976—as reported directly in a survey by the Bureau of the Census—was $387.6 million. And adjustments to these statistics by Census Bureau's Foreign Trade Division indicate a more realistic export value of $664 million, about two-thirds higher than the directly reported export figure of $387.6 million.

Table 6 lists the value of printing and publishing industry shipments and exports for 1976, according to each of the graphic arts sectors.

The U.S. book publishing industry accounts for the largest share of the graphic arts export dollar. Census estimated its export contribution as $318 million in 1976, about 48 percent of total U.S. printed product exports of $664 million. Three graphic arts industries—periodical publishing, book publishing, and commercial printing—showed combined 1976 exports of $624 million or 94 percent of the $664 million total.

The relatively small export role assigned to U.S. printed products is evident from the data shown in this table. While U.S. book publishers ship at least 6 percent of their products to overseas markets, the graphic arts industry average is less than two percent. For some printing and publishing industries—manifold business forms, greeting card publishing, and blankbooks and bookbinding—estimated exports represent well under one percent of total U.S. value of shipments.

Graphic Arts Production, by State and Standard Metropolitan Statistical Area

The Bureau of the Census report on 1976 U.S. printed product shipments, including exports, contained detailed information on both a regional (State) and standard metropolitan statistical area (SMSA) basis. Tables 7 and 8 show the interrelationship between U.S. graphic arts value of shipments, employment and exports.

The U.S. printing and publishing industry is geographically dispersed, with an array of graphic arts establishments in every State. But the industry displays a strong orientation to the largest, most populous areas: five States—California, Illinois, New York, Ohio, and Pennsylvania—account for 50 percent of total U.S. value of printed product shipments and 63 percent of printed product exports. Foreign sales of establishments located in New York represent just under one-third of total U.S. graphic arts exports.

As noted in table 6, books are the primary export item of the U.S. graphic arts industry. And from the standpoint of exports as a percent of total shipments, Pennsylvania ranks first in this category with 12.8 percent of its total book printing and publishing activity geared to overseas markets. Next come New Jersey (8.2 percent), New York (7.1 percent), Illinois (6.8 percent), and Indiana (6.3 percent). All showed export percentages above the average value of shipments/export ratio for U.S. books of 6.0 percent.

The value of shipments/export ratio averaged 3.4 percent for U.S. periodical publishers. States exceeding this average were Illinois (4.5 percent), Missouri (4.4 percent), and Tennessee (3.7 percent). Less than one percent of the value of shipments of U.S. commercial printers moves to overseas markets, but two States showed a value of shipments/export ratio considerably above this average. Connecticut's ratio of 5.8 percent and Colorado's 2.8 percent ratio represent relatively strong export activities in these geographic areas.

Table 8 contains data on U.S. graphic arts shipments, exports, and employment, by Standard Metropolitan Statistical Area (SMSA). The emphasis given to printed products produced for export markets varies considerably from area to area, but several SMSA's demonstrate a strong orientation toward the manufacture of graphic arts products for international sale. This emphasis may be best expressed in the ratio of exports as a percentage of total production.

Eight U.S. urban areas showed a production/export ratio equal to or greater than 2.0 percent for the manufacture of printed products. The areas ranged from Hartford, Conn. (6.7 percent) to Denver-Boulder, Colo. (2.0 percent), and included Cincinnati, Ohio-Ky.-Ind. (3.4 percent), New York, N.Y.-N.J. (3.2 percent), Chicago, Ill. (2.8 percent), San Jose, Calif. (2.8 percent), Philadelphia, Pa.-N.J. (2.7 percent), and St. Louis, Mo.-Ill. (2.1 percent). Two SMSA's showed relatively high production/export ratios for the manufacture of books: Philadelphia, Pa.-N.J. (17.3 percent), and New York, N.Y.-N.J. (7.9 percent). Exports represent substantial markets for commercial printers in three particular SMSA's: Cincinnati, Ohio-Ky.-Ind. (6.1 percent), Denver-Boulder, Colo. (5.0 percent), and St. Louis, Mo.-Ill. (2.1 percent).

Summary

For many U.S. printers and publishers, the substantial size and attractiveness of the domestic U.S. market inhibits the exploration of sales beyond the Nation's borders. But this recent survey by the Bureau of the Census provides strong evidence that U.S. printed products—particularly books and periodicals—can find considerable success overseas. The Census survey reported U.S. printed product exports of $664 million in 1976; by 1978 the value of exports rose to $841 million.

More importantly, input/output analysis by the Bureau of Economic Analysis indicates that the direct and indirect requirements necessary to support this $841 million export level would pump an additional $840 million into the United States economy. This estimated total contribution of $1.7 billion, all resulting from export activity, substantiates the U.S. graphic industries' search for additional markets abroad.

Table 6.—Value of Shipments and Exports of U.S. Graphic Arts Industries: 1976

SIC code	Industry	Value of Shipments (million dollars)		
		Total	Directly reported exports[1]	Estimated exports[2]
27	Printing and publishing, total	$42,837.8	$387.6	$664.0
2711	Newspapers	11,659.2	1.9	5.7
2721	Periodicals	5,043.5	48.5	170.1
273	Books	5,295.4	191.4	318.1
2731	Book publishing	3,967.5	175.6	n.a.
2732	Book printing	1,327.9	15.8	n.a.
2741	Miscellaneous publishing	1,332.6	12.8	14.5
275	Commercial printing	16,646.3	102.7	135.6
2751	Commercial printing, letterpress	4,670.1	45.8	n.a.
2752	Commercial printing, lithographic	7,705.0	43.8	n.a.
2753	Engraving and plate printing	291.1	(D)	n.a.
2754	Commercial printing, gravure	980.1	(D)	n.a.
2761	Manifold business forms	2,327.9	4.2	2.6
2771	Greeting card publishing	906.7	10.1	5.5
278	Blankbooks and bookbinding	1,342.8	3.6	7.5
2782	Blankbooks and looseleaf binders	875.8	3.6	n.a.
279	Printing trade services	1,283.3	12.4	4.7
2794	Electrotyping and stereotyping	31.4	(Z)	n.a.
2795	Lithographic platemaking services	430.5	12.4	n.a.

n.a.—Not available.

(D)—Data withheld to avoid disclosure of individual company shipments.

(Z)—Represents less than $500,000.

[1]The "true" value of all exports is understated, since (1) many respondents do not know the final destination of the products produced in their plants, and (2) establishments exporting less than $25,000 of exports were not asked to report their actual figures.

[2]Data have been adjusted to account for exporters, wholesalers, and manufacturers not responding in the survey based on statistics supplied by the Foreign Trade Division of the Bureau of the Census from shippers' export declarations.

Note: There are instances where direct reported exports may be greater than estimated exports. This results where (1) an establishment in the survey reports exports out of context with its sampling weight, and (2) the commodity classification of the foreign trade data versus the industry classification of the survey data are dissimilar.

Source: U.S. Department of Commerce, Bureau of the Census.

Table 7.—Printed Product Exports, Production, and Employment, by State: 1976

State	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
Alabama						
Printing & publishing, total	367.5	0.4	0.1	7.9	(Z)	(Z)
Alaska						
Printing & publishing, total	133.6	0.1	0.1	2.8	(Z)	(Z)
Arizona	n.a.	n.a.	—	n.a.	n.a.	—
Arkansas	n.a.	n.a.	—	n.a.	n.a.	—

Table 7.—Printed Product Exports, Production, and Employment, by State: 1976

State	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
California						
Printing & publishing, total	3,815.3	23.2	0.6	94.0	0.5	0.5
Newspapers	1,289.5	0.3	(Z)	35.2	(Z)	(Z)
Books	223.5	8.4	3.8	5.2	0.3	5.1
Miscellaneous publishing	109.0	1.1	1.0	2.8	(Z)	(Z)
Commercial printing	1,416.3	10.7	0.8	35.8	0.2	0.5
Colorado						
Printing & publishing, total	408.8	4.9	1.2	11.2	(Z)	(Z)
Commercial printing	129.7	3.7	2.8	3.2	(Z)	(Z)
Connecticut						
Printing & publishing, total	791.4	19.0	2.4	21.4	0.3	1.6
Commercial printing	221.7	12.9	5.8	6.7	0.3	3.7
Delaware	n.a.	n.a.	—	n.a.	n.a.	—
District of Columbia						
Printing & publishing, total	625.9	4.3	0.7	13.0	0.1	0.4
Florida						
Printing & publishing, total	977.7	7.9	0.8	29.3	0.1	0.4
Commercial printing	262.9	4.2	1.6	8.6	0.1	0.9
Georgia	n.a.	n.a.	—	n.a.	n.a.	—
Hawaii						
Printing & publishing, total	133.6	0.1	0.1	2.8	(Z)	(Z)
Idaho	n.a.	n.a.	—	n.a.	n.a.	—
Illinois						
Printing & publishing, total	4,576.0	108.8	2.4	105.7	1.8	1.7
Newspapers	719.5	0.2	(Z)	24.6	(Z)	(Z)
Periodicals	516.1	23.3	4.5	7.1	0.2	2.6
Books	651.7	44.2	6.8	8.3	0.4	5.4
Commercial printing	1,902.5	38.5	2.0	45.6	1.1	2.4
Manifold business forms	176.2	(Z)	(Z)	2.7	(Z)	(Z)
Indiana						
Printing & publishing, total	1,010.3	13.2	1.3	27.5	0.3	1.1
Books	195.0	12.2	6.3	4.6	0.3	6.3
Iowa						
Printing & publishing, total	582.7	6.8	1.2	14.1	0.1	0.4
Commercial printing	95.5	0.4	0.4	3.7	(Z)	(Z)
Kansas						
Printing & publishing, total	628.0	2.5	0.4	17.6	0.1	0.4
Commercial printing	150.2	0.1	0.1	6.8	(Z)	(Z)
Kentucky						
Printing & publishing, total	443.0	2.3	0.5	12.3	(Z)	(Z)
Commercial printing	231.1	1.6	0.7	4.8	(Z)	(Z)
Louisiana						
Printing & publishing, total	260.8	0.1	(Z)	6.9	(Z)	(Z)
Maine						
Printing & publishing, total	91.0	0.2	0.3	3.0	(Z)	(Z)
Maryland						
Books	108.9	3.1	2.9	2.8	0.2	5.9
Massachusetts						
Printing & publishing, total	1,462.4	11.5	0.8	40.5	0.1	0.3
Newspapers	433.1	0.6	0.1	14.9	(Z)	(Z)
Books	403.1	7.9	2.0	7.5	0.1	1.1
Commercial printing	324.7	1.7	0.5	10.5	(Z)	(Z)
Blankbooks & bookbinding	141.1	0.2	0.1	3.3	(Z)	(Z)

Table 7.—Printed Product Exports, Production, and Employment, by State: 1976

State	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
Michigan						
Printing & publishing, total	1,362.6	9.0	0.7	34.5	0.1	0.4
Books	155.0	5.1	3.3	3.7	0.1	2.4
Miscellaneous publishing	127.3	0.1	(Z)	2.5	(Z)	(Z)
Commercial printing	404.0	0.8	0.2	10.5	(Z)	(Z)
Minnesota						
Printing & publishing, total	927.5	4.9	0.5	26.0	0.1	0.5
Books	104.9	1.8	1.7	2.9	(Z)	(Z)
Commercial printing	426.4	1.5	0.3	10.9	(Z)	(Z)
Mississippi	n.a.	n.a.	—	n.a.	n.a.	—
Missouri						
Periodicals	106.6	4.7	4.4	2.8	0.2	5.7
Commercial printing	329.1	4.6	1.4	9.6	0.1	1.3
Montana	n.a.	n.a.	—	n.a.	n.a.	—
Nebraska	n.a.	n.a.	—	n.a.	n.a.	—
Nevada						
Printing & publishing, total	63.6	0.7	1.1	3.9	(Z)	(Z)
New Hampshire						
Printing & publishing, total	137.4	0.3	0.2	3.8	(Z)	(Z)
New Jersey						
Books	138.5	11.3	8.2	3.2	0.3	9.2
Miscellaneous publishing	131.7	0.4	0.3	5.2	(Z)	(Z)
Commercial printing	435.5	0.2	(Z)	12.0	(Z)	(Z)
Blankbooks & bookbinding	127.2	0.3	0.3	3.8	(Z)	(Z)
New Mexico	n.a.	n.a.	—	n.a.	n.a.	—
New York						
Printing & publishing, total	7,907.4	211.3	2.7	147.8	3.7	2.5
Periodicals	2,347.5	65.2	2.8	26.5	1.4	5.3
Books	1,906.8	134.5	7.1	25.3	2.0	8.0
Commercial printing	1,577.2	10.6	0.7	40.2	0.2	0.6
North Carolina						
Printing & publishing, total	504.0	0.5	0.1	17.2	(Z)	(Z)
North Dakota	n.a.	n.a.	—	n.a.	n.a.	—
Ohio						
Printing & publishing, total	2,269.6	24.4	1.1	56.5	0.5	0.8
Periodicals	131.4	3.1	2.3	2.6	0.1	3.1
Books	219.5	8.1	3.7	3.8	0.1	3.5
Commercial printing	889.6	12.1	1.4	21.1	0.2	1.1
Oklahoma						
Printing & publishing, total	289.4	0.7	0.3	9.1	(Z)	(Z)
Oregon						
Printing & publishing, total	332.3	0.3	0.1	8.4	(Z)	(Z)
Pennsylvania						
Printing & publishing, total	2,693.4	53.8	2.0	72.5	1.5	2.1
Newspapers	711.7	2.6	0.4	23.5	0.1	0.3
Books	212.5	27.2	12.8	5.3	0.7	13.5
Commercial printing	948.6	4.5	0.5	29.5	0.1	0.4
Rhode Island	n.a.	n.a.	—	n.a.	n.a.	—
South Carolina						
Printing & publishing, total	139.3	0.2	0.1	5.2	(Z)	(Z)
South Dakota	n.a.	n.a.	—	n.a.	n.a.	—
Tennessee						
Printing & publishing, total	664.7	5.7	0.9	23.6	0.2	0.7
Periodicals	66.7	2.5	3.7	2.7	0.1	2.6
Books	128.9	3.1	2.4	4.7	0.1	1.9
Commercial printing	251.5	0.1	(Z)	8.2	(Z)	(Z)

Table 7.—Printed Product Exports, Production, and Employment, by State: 1976

State	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
Texas						
Printing & publishing, total	1,580.4	6.9	0.4	46.5	0.3	0.6
Books	76.9	1.1	1.4	2.5	(Z)	(Z)
Commercial printing	524.0	3.7	0.7	15.7	0.1	0.4
Utah	n.a.	n.a.	—	n.a.	n.a.	—
Vermont						
Printing & publishing, total	124.2	0.4	0.4	3.7	(Z)	(Z)
Virginia						
Printing & publishing, total	602.1	2.9	0.5	16.4	(Z)	(Z)
Commercial printing	256.5	1.2	0.5	5.8	(Z)	(Z)
Washington	n.a.	n.a.	—	n.a.	n.a.	—
West Virginia	n.a.	n.a.	—	n.a.	n.a.	—
Wisconsin						
Printing & publishing, total	1,146.6	4.1	0.4	29.4	0.1	0.2
Books	176.4	1.4	0.8	3.7	(Z)	(Z)
Commercial printing	518.1	1.7	0.3	11.9	(Z)	(Z)
Wyoming	n.a.	n.a.	—	n.a.	n.a.	—

n.a.—Not available.
(Z)—Less than one half of measurement shown.

Source: U.S. Department of Commerce, Bureau of the Census.

Table 8.—Printed Product Exports, Production, and Employment, by Standard Metropolitan Statistical Area: 1976

Standard Metropolitan Statistical Area	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
Albany-Schenectady-Troy, N.Y.						
Printing and publishing, total	132.8	0.8	0.6	3.5	(Z)	(Z)
Allentown-Bethlehem-Easton, Pa.-N.J.						
Printing & publishing, total	161.2	1.5	0.9	4.3	(Z)	(Z)
Appleton-Oshkosh, Wis.						
Printing, & publishing, total	124.9	0.6	0.5	3.5	(Z)	(Z)
Baltimore, Md.						
Printing & publishing, total	404.8	0.9	0.2	10.6	(Z)	(Z)
Commercial printing	142.2	0.2	0.1	3.1	(Z)	(Z)
Boston, Mass.						
Printing & publishing, total	917.4	7.8	0.8	21.7	0.1	0.5
Books	335.8	6.3	1.9	5.0	0.1	2.0
Bridgeport, Conn.						
Printing & publishing, total	77.7	0.2	0.2	2.6	(Z)	(Z)
Buffalo, N.Y.						
Printing & publishing, total	246.9	0.8	0.3	7.2	(Z)	(Z)
Commercial printing	132.5	0.7	0.5	3.6	(Z)	(Z)
Chicago, Ill.						
Printing & publishing, total	3,724.7	104.7	2.8	79.0	1.8	2.3
Blankbooks & bookbinding	158.2	1.0	0.7	6.1	(Z)	(Z)
Cincinnati, Ohio-Ky.-Ind.						
Printing & publishing, total	473.8	15.9	3.4	11.8	0.3	2.4
Commercial printing	198.6	12.1	6.1	4.4	0.2	4.5

Table 8.—Printed Product Exports, Production, and Employment, by Standard Metropolitan Statistical Area: 1976

Standard Metropolitan Statistical Area	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
Cleveland, Ohio						
Printing & publishing, total	561.6	2.2	0.4	11.4	(Z)	(Z)
Commercial printing	216.6	0.1	(Z)	4.9	(Z)	(Z)
Columbus, Ohio						
Printing & publishing, total	268.6	1.7	0.6	6.0	(Z)	(Z)
Dallas-Ft. Worth, Tex.						
Printing & publishing, total	647.2	4.4	0.7	18.0	0.1	0.5
Commercial printing	232.9	3.5	1.5	6.3	0.1	1.6
Dayton, Ohio						
Printing & publishing, total	327.8	0.2	(Z)	7.6	(Z)	(Z)
Denver-Boulder, Colo.						
Printing & publishing, total	314.0	6.3	2.0	8.4	0.1	1.2
Commercial printing	105.8	5.3	5.0	3.0	0.1	3.3
Detroit, Mich.						
Printing & publishing, total	672.2	1.0	0.1	16.4	(Z)	(Z)
Commercial printing	203.1	0.5	0.2	5.1	(Z)	(Z)
Grand Rapids, Mich.						
Printing & publishing, total	140.9	2.6	1.8	3.0	(Z)	(Z)
Hartford, Conn.						
Printing & publishing, total	120.0	8.0	6.7	3.1	0.1	3.2
Indianapolis, Ind.						
Printing & publishing, total	295.3	2.0	0.7	8.2	0.1	1.2
Los Angeles-Long Beach, Calif.						
Printing & publishing, total	1,719.2	12.9	0.8	40.7	0.2	0.5
Commercial printing	690.9	9.3	1.4	17.1	0.2	1.2
Louisville, Ky.-Ind.						
Printing & publishing, total	229.1	0.3	0.1	6.9	(Z)	(Z)
Milwaukee, Wis.						
Printing & publishing, total	464.0	2.8	0.6	12.7	0.1	0.8
Commercial printing	255.3	1.9	0.7	6.3	0.1	1.6
Minneapolis-St. Paul, Minn.-Wis.						
Printing & publishing, total	739.0	2.7	0.4	19.6	0.1	0.4
Books	103.4	1.8	1.7	2.8	(Z)	(Z)
Nashville-Davidson, Tenn.						
Printing & publishing, total	258.7	2.4	0.9	8.6	0.1	1.2
Commercial printing	110.0	0.1	(Z)	3.6	(Z)	(Z)
Nassau-Suffolk, N.Y.						
Printing & publishing, total	446.4	0.8	0.2	10.3	(Z)	(Z)
New Orleans, La.						
Printing & publishing, total	119.9	0.1	0.1	3.6	(Z)	(Z)
New York, N.Y.-N.J.						
Printing & publishing, total	6,734.7	213.4	3.2	114.7	3.7	3.2
Books	1,767.8	139.7	7.9	21.4	2.1	9.9
Commercial printing	1,131.1	9.4	0.8	27.8	0.2	0.8
Newark, N.J.						
Commercial printing	109.1	(Z)	(Z)	3.2	(Z)	(Z)
Northeast Pennsylvania						
Printing & publishing, total	93.3	0.9	0.9	3.5	(Z)	(Z)
Paterson-Clifton-Passaic, N.J.						
Printing & publishing, total	147.6	0.2	0.2	5.4	(Z)	(Z)
Philadelphia, Pa.-N.J.						
Printing & publishing, total	1,500.2	40.7	2.7	37.1	1.3	3.4
Books	153.4	26.5	17.3	3.5	0.7	20.0
Commercial printing	523.1	3.8	0.7	13.8	0.1	0.8

Table 8.—Printed Product Exports, Production, and Employment, by Standard Metropolitan Statistical Area: 1976

Standard Metropolitan Statistical Area	Production ($ million)	Estimated exports ($ million)	Exports as a percent of production	Employment (thousands)	Estimated employment related to exports (thousands)	Employment related to exports as a percent of total employment
Pittsburgh, Pa.						
Printing & publishing, total	305.3	0.2	0.1	10.1	(Z)	(Z)
Commercial printing	112.2	(Z)	(Z)	4.5	(Z)	(Z)
Portland, Oreg.-Wash.						
Printing & publishing, total	239.4	0.2	0.1	5.2	(Z)	(Z)
Richmond, Va.						
Printing & publishing, total	215.7	1.6	0.7	5.6	(Z)	(Z)
St. Louis, Mo.-Ill.						
Printing & publishing, total	556.4	11.7	2.1	13.4	0.2	1.5
Commercial printing	214.4	4.5	2.1	5.8	0.1	1.7
San Diego, Calif.						
Printing & publishing, total	147.1	0.7	0.5	3.8	(Z)	(Z)
San Francisco-Oakland, Calif.						
Printing & publishing, total	874.2	2.2	0.2	20.2	(Z)	(Z)
Commercial printing	378.0	0.8	0.2	8.2	(Z)	(Z)
San Jose, Calif.						
Printing & publishing, total	243.8	6.9	2.8	5.7	0.2	3.5
Springfield-Chicopee-Holyoke, Mass.-Conn.						
Printing & publishing, total	205.0	1.1	0.5	5.2	(Z)	(Z)
Tampa-St. Petersburg, Fla.						
Printing & publishing, total	158.4	0.3	0.2	5.4	(Z)	(Z)
Washington, D.C.-Md.-Va.						
Printing & publishing, total	978.0	6.5	0.7	22.2	0.1	0.3

(Z)—Less than one half of measurement shown.

Source: U.S. Department of Commerce, Bureau of the Census.

PRINTING AND PUBLISHING IN THE FEDERAL REPUBLIC OF GERMANY

Editor's Note: The following report on graphics arts markets in West Germany was based on a market research survey conducted for the U.S. Department of Commerce's Industry and Trade Administration. The full report, titled *The Market for Graphic Industries Equipment-Germany*, is one of a series of *ITA* publications focusing on foreign market opportunities for U.S. suppliers.

Some of the data in this series are reproduced in their original unevaluated form and the distribution of this report does not necessarily imply the concurrence of the Department of Commerce in the opinions or conclusions contained therein.

For more information on West Germany's graphic arts industries, write to: Editor, *Printing and Publishing*, Room 2110, U.S. Department of Commerce, Washington, D.C. 20230.

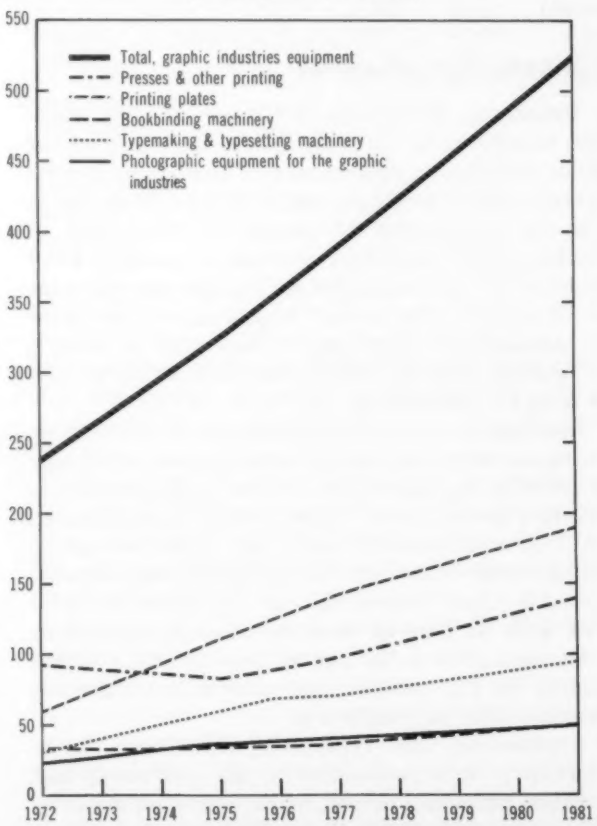
German printers, caught between steadily rising demand for their products and inexorably mounting labor costs, are investing heavily in any new equipment that will meet their high standards for quality copy and multiply output per employee. The German market for graphic industries equipment, a substantial $389 million[1] in 1977, is projected to expand an average 8 percent annually to an impressive $525 million in 1981 (see table 9 and chart 1). The primary motive for all new investment is cost saving, and large numbers of machines which are still in perfect working order are being replaced to reduce operating expenses.

In many ways, the German printing industry is still in the early stages of adopting advanced technology. Rarely is newspaper makeup performed with the aid of video displays or copy fed directly to the presses by the editor via video terminals. Only an estimated 20 percent of the nation's typesetting is done on phototypesetting units. Efforts to upgrade text input are forecast to push the typemaking and typesetting machinery market to $95 million in 1981, with computerized phototypesetting systems accounting for nearly 60 percent of sales.

In order to exploit fully the advantages of phototypesetting systems, printers are turning to offset presses or techniques which use photopolymer printing plates. Half of all printed matter is now produced by offset methods, and 11 percent of daily newspapers are printed on modern rotary offset presses. By 1981, end-users are expected to be spending $140 million a year on presses

[1] All values are shown in U.S. dollars; local currency data are converted at the following exchange rates: US$1=3.19DM (1972) and 2.46 DM (1976 and subsequent years). Values for years through 1976 are expressed in current rather than constant dollars; values for 1977 and subsequent years are expressed in 1976 constant dollars.

Chart 1.—Germany: The market for graphic industries equipment, 1972-81
(in millions of U.S. dollars)



Source: Industry and Trade Administration, Office of International Marketing research study.

and other printing machinery. A degree of uncertainty surrounds future developments because of expected advances in platemaking techniques—the industry is waiting for 'dry' methods, mainly laser, to replace 'wet' chemical and photographic techniques.

Application of photographic methods in the printing industry is still expanding, as shown in the rapid growth of the photographic equipment market. Purchases jumped from $22.5 million in 1972 to $40.6 million in 1977 and are forecast to total a healthy $50 million in 1981. Sophisticated equipment is needed to meet the customers' requirements for high-quality reproduction.

The absence of any revolutionary changes in bookbinding techniques has led to a fairly stable market for bookbinding equipment over the past few years. However, the determination of German book printers to rationalize production at every opportunity has kept investment high—$37 million in 1977. The growing use of very advanced, high performance printing equipment is certain to stimulate demand for the corresponding binding equipment, and the surge in consumption of magazines and paperback books will add to the need for more sophisticated machinery. Sales of $50 million a year are predicted by 1981.

Best Sales Opportunities

Despite the prominence of German printing equipment manufacturers in many fields, the share of the graphic industries equipment market supplied by imports has been rising, from 22 percent in 1972 to 28 percent in 1976 and a projected 34 percent in 1981. Sales of American-made equipment reached a sizable $19.7 million in 1976 and accounted for 19.4 percent of imports and 5.5 percent of the market. Projections for 1981 show U.S. manufacturers supplying 20 percent of the imports and 7 percent of the market with sales totaling $36 million (see table 10 and chart 2).

American producers have succeeded in Germany by offering equipment that incorporates the latest technology and provides the highest performance available, or that meets very specific needs. When German wages began to soar, U.S. manufacturers were ready with laborsaving techniques and machinery; when newspaper and magazine circulation turned sharply upward, U.S. firms were prepared with well-tested mass production equipment. Revaluations of the dollar and the Deutsche Mark further enhanced the U.S. position, and today only Switzerland challenges America's leadership.

Typemaking and typesetting machinery.—U.S. leadership is most pronounced in the typemaking and typesetting equipment market, where U.S. sales are projected to jump from $5.5 million in 1976 to $10.5 million in 1981, accounting for 35 percent of imports and 11 percent of total sales of this machinery. American manufacturers are recognized as the major innovators in printing technology, particularly in the areas of advanced phototypesetting techniques and utilization of modern electronics. Many of the following products expected to be in high demand over the next few years will be purchased from U.S. firms:

- Photocomposition equipment
- Phototypesetting machines
- Simple photolettering units
- Keyboard video display terminals (VDT's) for off-line or on-line entry
- Video displays for processing stored copy

Table 9.—Germany: The market[1] for graphic industries equipment 1972, 1976, 1977, and 1981

(In millions of U.S. dollars)

	1972	1976	1977	1981
Typemaking and typesetting machinery[2]				
Production	58.5	91.4	101.6	135
Imports	5.5	16.3	18.3	30
Exports	33.6	38.6	48.8	70
Market size	30.4	69.1	71.1	95
Printing plates				
Production	66.0	150.0	175.0	270
Imports	6.8	28.0	40.0	55
Exports	13.9	53.0	72.0	135
Market size	58.9	125.0	143.0	190
Photographic equipment for the graphic industries				
Production	50.5	81.3	93.5	120
Imports	7.0	12.2	14.2	20
Exports	35.0	54.9	67.1	90
Market size	22.5	38.6	40.6	50
Presses and other printing machinery				
Production	304.3	384.1	404.5	530
Imports	25.9	36.6	40.6	60
Exports	237.8	331.3	347.6	450
Market size	92.4	89.4	97.5	140
Bookbinding machinery				
Production	55.8	87.4	91.4	130
Imports	6.8	8.1	10.2	15
Exports	29.6	61.0	65.0	95
Market size	33.0	34.5	36.6	50
Totals				
Production	535.1	794.2	866.0	1,185
Imports	52.0	101.2	123.3	180
Exports	349.9	538.8	600.5	840
Market size	237.2	356.6	388.8	525

[1]Size of market equals production plus imports (c.i.f.) minus exports (f.o.b.). Other products, such as mailers, specialized materials handling equipment, quality control instruments, and pollution control equipment are not included in market size figures although these items are discussed in other sections. Parts are also excluded.

[2]Printing materials such as printing type and furniture; blocks and other printing forms; matrices, and plates, cylinders, and lithographic stones are excluded from this category. General-purpose computers and peripheral equipment that may be used in text editing and phototypesetting systems are not included in the statistical data.

Source: Industry and Trade Administration, Office of International Marketing research study.

Optical character recognition (OCR) readers and typewriters
Magnetic tape read/write units
Editing typewriters with magnetic tape
Correction and composing units
Proof presses for web-offset multicolor printing
Presensitized offset plates
Direct and wraparound photopolymer plates and related processing equipment
Shallow-relief equipment
Offset plate processors
Automated platemaking equipment for small offset printing systems
Dry platemaking systems for offset plates for full newspaper pages
Engraving machines for gravure cylinders
Electronic equipment for cylinder preparation

Investment in phototypesetting equipment has been growing dramatically. Some 200-300 phototypesetting and about 3,000 photolettering units were operational in 1972; by 1975, their numbers had risen to 2,000 and 7,000 respectively. Even so, nearly 80 percent of printed matter is still typeset by other methods. As the range of available phototypesetting equipment becomes wider and more differentiated, printers throughout the industry are expected to change over.

Sales of computerized phototypesetting systems are forecast to reach $55 million in 1981 (see table 11). By 1975, some 100 establishments had installed 150 photocomposition systems equipped with freely programmable computers having at least 32K memories. Investment in these systems totaled an estimated $7.5 million in 1975 alone. Another 200 printers are expected to introduce fully automated photocomposition systems into their plants over the next few years, bringing 1981 sales up to a minimum of $20 million.

About 50 models of phototypesetting machines are offered in Germany by some 15 manufacturers. American firms supply both sophisticaed and standard equipment. They supply standard models with favorable price-to-performance ratios, as well as high-performance machinery that capitalizes on their long experience with such systems and their technological lead in electronics. Their sales of computerized phototypesetting equipment totaled $4.3 million in 1975 and are projected to reach $8 million in 1981.

Domestic manufacturers provide more than 60 percent of the phototypesetting machinery sold. Half of the installed equipment was supplied by H. Berthold, which is highly respected for its smaller systems. Mergenthaler Linotype, a subsidiary of the American firm, produces medium capacity typesetting systems that meet the highest standards. Siemens-Dr. Hell offers the latest state-of-the-art technology and is involved in intensive development of modern systems, including the related software. Photolettering units are supplied by Dr. Boeger Photosatz GmbH.

Table 10.—Germany: Imports of graphic industries equipment by country of origin, 1972, 1975, and 1976

(In thousands of U.S. dollars)

	1972	1975	1976
Typemaking and typesetting machinery			
United States	1,528	5,283	5,500
United Kingdom	1,317	2,485	2,700
Switzerland	882	1,509	1,800
France	217	544	400
Other	1,549	4,608	5,860
Subtotal	5,493	14,429	16,260
Printing plates			
United States	765	2,400	3,550
France	2,500	3,800	5,500
United Kingdom	745	2,500	4,000
Other	2,760	10,680	14,950
Subtotal	6,770	19,380	28,000
Photographic equipment for the graphic industries			
United States	1,800	3,250	3,650
Italy	1,600	2,300	2,500
France	600	600	600
United Kingdom	400	600	400
Other	2,600	5,250	5,050
Subtotal	7,000	12,000	12,200
Presses and other printing machinery			
United States	7,150	5,275	6,000
Switzerland	3,161	12,233	14,000
Italy	4,285	7,929	7,000
France	3,244	2,542	2,200
Other	8,061	7,280	7,390
Subtotal	25,901	35,259	36,590
Bookbinding machinery			
United States	1,071	953	950
Switzerland	4,520	4,106	4,500
Italy	157	696	900
United Kingdom	104	310	250
Other	1,015	1,622	1,530
Subtotal	6,867	7,687	8,130
Total	52,031	88,755	101,180

Source: Official German trade statistics.

The major third-country supplier of phototypesetting equipment is Linotype-Paul Ltd., a British subsidiary of Mergenthaler Linotype of the United States. J. Bobst & Fils of Switzerland and The Monotype Corporation of the United Kingdom each supplies about 1 percent of the market. Morisawa Co. of Japan sells simple photolettering units.

German printers view text entry as the bottleneck in the application of modern typesetting techniques. Advances in output speed cannot be fully utilized without employing the latest input methods. Users are increasingly performing text entry and phototypesetting on separate machines. Data entry via punched tape—traditionally

widely used as a medium in the printing industry—is being replaced more and more by magnetic tape, while keyboard entries of all kinds are being equipped with improved display and correction devices. The number of rather expensive OCR readers in use has risen sharply, and demand for this equipment will remain on a high level.

Integrated text processing and typesetting systems using VDT's are much discussed in the trade press, but only two of these systems have been installed. Technical difficulties are yet to be overcome, and software problems have still not been completely solved in the German printing industry. Nevertheless, a large number of these systems will probably be introduced by 1981.

Digitalized communications systems which permit incoming news agency reports to be typeset directly are expected to influence newspaper typesetting methods. Facsimile transmission using laser techniques has aroused the interest of several printers.

U.S. suppliers play a dominant role in the market for entry devices such as OCR readers, VDT's, and related electric typewriters. Part of this equipment, however, is produced or assembled in Europe.

Proof presses for multicolor printing will be required in larger numbers because of the exacting demands of German customers for quality printed products. These items are an American specialty much appreciated by German experts.

Demand for offset and photopolymer platemaking equipment is intensifying. Engraving machines for gravure cylinders should also be in greater demand in view of the generally anticipated rise in the importance of rotogravure methods.

The market for offset platemaking equipment is expected to climb from $1.5 million in 1975 to $3 million in 1981, with two-thirds of the equipment imported from the United States. Americans are particularly competitive in the field of automated platemaking for small offset printing systems because of their greater experience. A dry platemaking system for offset plates for full newspaper pages, recently developed in the United States, may boost U.S. sales considerably.

Machines for manufacturing and processing photopolymer plates are already successfully marketed in Germany by U.S. producers and, despite substantial German and Japanese competition, will continue to offer American companies promising sales opportunities. U.S. products selling well include washout, exposure, and drying units.

Printing Plates.—Sales of printing plates in 1976 reached $125 million, divided roughly into $70 million for metal and $55 million for photopolymer plates. A $190 million market is forecast for 1981. Imports from the United States, mostly photopolymer or presensitized offset plates, are expected to grow from $3.6 million in 1976 to more than $7 million in 1981, accounting for 4 percent of the market.

Increased application of offset techniques throughout the printing industry is leading to a larger demand for offset plates. Kalle, the leading domestic supplier of offset plates, has annual sales approaching $40 million. French manufacturers, who produce primarily offset equipment, supply 20 percent of the market for imported plates: Quadrimetal contributes substantially to the French share. Howson Algraphy of the Netherlands is also known to Germany buyers.

The use of plastic plates is expanding rapidly. A large number of commercial establishments have already adopted them, whereas newspaper printers are just beginning to turn to photopolymer wraparound plates.

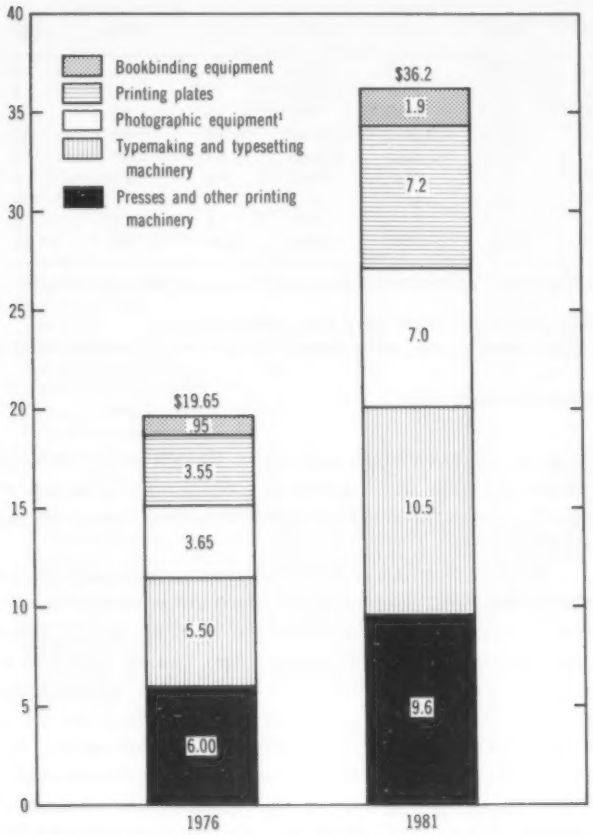
Research activities of domestic manufacturers are especially directed at application of photopolymer plates, including the development of new gravure plates. BASF developed Nyloprint, one of the best-selling photopolymer plates in Europe, and currently leads in the German market. Grace of the United Kingdom is a major third-country supplier.

Table 11.—Germany: Total market and imports from the United States of selected types of graphic industries equipment, 1975 and 1981
(In millions of U.S. dollars)

	1975		1981	
	Total market	Imports from the U.S.	Total market	Imports from the U.S.
Phototypesetting systems, computerized	30.0	4.25	55	8.0
Offset platemaking equipment	1.5	.90	3	2.0
Process cameras	6.0	.07	10	.1
Lighting systems	1.5	.30	4	.8
Color separation systems	6.0	.15	11	.3
Sheet-fed offset presses	38.0	1.30	55	1.8
Web-fed offset presses	14.0	3.20	30	5.5
Flexographic presses	4.5	.40	10	.8
Complete self-contained book printing systems	—	—	1	1.0

Source: Industry and Trade Administration, Office of International Marketing research study.

Chart 2.—Germany: U.S. sales of graphic industries equipment, 1976 and 1981
(in millions of U.S. dollars)



[1]Includes only photographic equipment used by the graphic industries.
Source: Industry and Trade Administration, Office of International Marketing research study.

Photographic equipment.—U.S. sales of photographic equipment to the graphic industries have been steadily rising since 1972. Sales of U.S.-made equipment are projected to advance from $3.7 million in 1976 (9.5 percent of the market) to $7 million (14 percent) in 1981. German printers are turning to American manufacturers to meet their needs for high performance machinery and more electronic controls. Products expected to be most in demand through 1981 include the following:

Process cameras, with and without electronic controls
Large vertical cameras
Enlargers
Electronic scanners
Automated film processors, especially with high working speeds
Enlarging color separation units with electronic exposure control
Contact printers with electronic exposure control
Step and repeat machines

About one-third of the 1,000 process cameras purchased in 1976 were equipped with electronic controls. Investment in process cameras is predicted to reach $10 million in 1981. Sales of cameras without controls are projected to expand an average 7 percent annually during the 1976-81 period, in contrast to a 15 percent growth in demand for automated cameras. The U.S. share of the camera market is small, and shrinking due to growing European competition and increasing overseas production by U.S. firms.

The widespread use of film developing machines is a relatively new trend in the German printing industry, and the market is still far from being saturated. At present there are about 2,800 machines in operation. The market is estimated at 600 units per year. A continued large demand is anticipated because only a relatively small proportion of potential end-users currently employ such units, and the large printing houses already using them will require additional machines. The trend is toward installation of more sophisticated and therefore higher-priced equipment. Sales are forecast to rise by an estimated 15 percent to 20 percent per year between 1977 and 1981. Film and plate developing machines are strongpoints of American industry. The market is dominated by U.S. firms. The fact that Agfa, the German-Belgian giant of the photographic equipment industry, distributes U.S. equipment shows clearly that the Europeans have very little to offer against American technology, although Durst and Hope Computer of Denmark sell some film processors.

Conventional enlargers are giving way to electronic scanners and enlarging color-separation units with electronic exposure controls. An estimated 85 of the latter units are being installed each year. The number of scanners in operation rose from 200 in 1972 to 300 in 1975 and is projected to increase by 100 to 120 units annually. Siemens and Crosfield Graphic Equipment of the United Kingdom are important suppliers.

Sales of contact printers are averaging 1,150 units per year, 60 to 70 percent of them with electronic exposure control. Annual increases in sales volume are forecast at 5 percent to 10 percent for units without controls and 12 percent to 15 percent for units with controls.

American firms supply around 20 percent of the market for lighting systems and are expected to increase their sales to $800,000 in 1981. U.S.-made step and repeat machines are sold in small numbers.

Presses and other printing machinery.—Despite substantial domestic production, German end-users import more than 40 percent of their presses and other printing machinery and anticipate increasing their purchases of

Table 12.—Germany: Sales, number of firms, and number of employees of the printing industry, by sector, 1972, 1975, and 1981

	Sales (in millions of U.S. dollars)			Number of firms[1]			Number of employees (in thousands)		
	1972	1975	1981	1972	1975	1981	1972	1975	1981
Newspaper[2]	568	946	1,140	550	500	400	20	14	8
Magazine[2]	583	850	1,100	900	800	700	14	10	5
Book	291	449	580	850	800	750	15	12	9
Commercial	648	1,031	1,350	1,800	2,000	2,400	92	78	68
Business forms	760	1,206	1,600	2,300	2,500	2,200	57	51	42
Packaging	185	315	425	400	500	550	14	13	11
Service industries[3]	205	280	400	350	400	450	13	10	9
Other	150	219	280	320	300	300	12	10	8
Total	3,390	5,296	6,875	6,900	7,000	6,800	237	198	160

[1]The sum of the columns exceeds the totals shown because companies active in several fields are listed in several end-user sectors but counted as only one firm in the total.

[2]The number of firms in the newspaper and magazine sectors includes, both publishing houses and printing establishments.

[3]Includes establishments primarily engaged in typesetting, photoengraving, electrotyping, stereotyping, lithographic platemaking, and related services for the printing trade.

Source: Industry and Trade Administration, Office of International Marketing research study.

foreign-made goods by 10.5 percent annually between 1976 and 1981. Exporters benefit from a mounting demand for highly specialized equipment that is not produced in Germany and from price advantages bestowed by the strength of the Deutsche Mark. Sales of U.S.-origin products are expected to advance from $6 million in 1976 to $9.6 million in 1981, aqcounting for 16 percent of imports.

The broad array of printing techniques now available to the graphic industries has created a diversified market for presses and related equipment. Demand over the next 5 years should be high for the following products:

Sheet-fed perfecting letterpresses
Small sheet-fed letterpresses
High performance, wed-feb rotary letterpress
Two-, four-, and six-color offset machines
Perfecting offset presses
Web-fed offset presses of all sizes
Web-fed rotary offset presses
Small, easy-to-operate offset printing systems
Saddles, lockups, and dampeners for dilitho
Gravure presses
Screen process equipment
Flexographic presses
Label-printing machines
Printing machines for endless forms
Equipment to produce snap-out forms
Complete self-contained book printing systems
Ultraviolet dryers

The predominance of letterpress is waning, but some items still have good sales prospects. Letterpress perfectors are being purchased for rationalization. Small format sheet-fed letterpress make up by far the largest category of press in use at present, with some 10,000 units installed. Many of them are equipped for letterset printing by plastic plates, and there will be sizable demand for replacements.

High-performance wed-fed rotary letterpresses are still purchased. The number installed is declining, but their capacity and performance are growing. These machines are preferred because they can be switched to letterset printing if necessary, and many printers are reluctant to make basic changes in their technology. Most newspaper houses are equipped with modern rotary letterpresses still far from the point of full writeoff, and a switch to offset is out of the question for economic reasons. These companies are starting to adopt dilitho techniques.

Better than 60 percent of sales ($85 million projected for 1981) are for offset equipment. The number of installed presses is still relatively small, but informed trade sources are convinced that the share of offset printing will increase. New areas of use for sheet-fed offset are opening up in in-plant printing and commercial instant-print shops, and these machines should account for 40 percent of press sales in 1981.

High growth rates, averaging 14 percent annually between 1975 and 1981, are anticipated for all sizes of web-fed offset presses. Machines with large working widths (over 100 cm) have been good sellers recently and are expected to remain in demand because they offer excellent possibilities of savings in operational costs. Emphasis will also be on smaller rotary offset machines for widths up to 76 cm, which are preferred by the many small and medium-sized firms. Particularly favorable forecasts are made for rotary offset newspaper printing presses for medium-circulation newspapers, as well as for special machines for business forms and packaging materials.

Table 13.—Germany: Capital expenditures and purchases of graphic industries equipment by major user sectors, 1976 and 1981
(in millions of U.S. dollars)

	Capital expenditures		Purchases of graphic industries equipment[1]	
	1976	1981	1976	1981
Newspaper publishing and printing	70	110	49	71
Magazine publishing and printing	55	85	42	58
Book publishing and printing	25	35	19	26
Commercial printing	30	40	25	34
Business forms printing	30	35	23	30
Printing for packaging	20	25	16	20
Government printing	15	20	11	15
Service industries for the printing trade[2]	15	25	12	20
In-plant printing[3]	20	30	16	26
Other printing	25	45	19	35
Total	305	450	232	335

[1]Does not include purchases of printing plates.
[2]Includes establishments primarily engaged in typesetting, photoengraving, electrotyping, stereotyping, lithographic platemaking, and related services for the printing trade.
[3]The term "in-plant printing" denotes printing facilities owned by a business or other entity and producing printed matter solely for the entity's own use.

Source: Industry and Trade Administration, Office of International Marketing research study.

Purchases of gravure presses are expected to remain steady. High performance rotary presses for large runs, such as mass circulation magazines and catalogs, should maintain their market position. If fully reliable wrap-around photopolymer plates for rotogravure can be developed, sales of rotogravure presses will escalate. Expected improvements in cylinder preparation techniques also will broaden their area of application. Printers are increasingly combining flexographic and gravure printing for packaging.

The market for flexographic presses is rising sharply and is projected to reach $10 million in 1981. The growing demand for printing materials other than paper is stimulating sales. Screen printing presses also are exhibiting relatively high growth rates to keep pace with rising demand for high quality color prints. Emphasis is on large format machines.

Complete self-contained book printing systems have yet to be installed in Germany, but their introduction is foreseen in the late 1970's. U.S. manufacturers are expected to satisfy the entire market, projected at $800,000 in 1981.

U.S. producers supply about 20 percent of the web-fed offset press market and are strong in certain specialized product categories. High performance web-fed rotary offset presses have been shipped to Germany in spite of heavy European competition, much of it from subsidiaries of U.S. firms. American manufacturers occupy a leading position in sales of smaller sheet-fed offset machines with plate processing equipment.

Web-fed presses for manifold business forms particularly suited to short- and medium-run operations are finding an extremely good market in Germany, because the use of office computers is booming. The domestic industry produces equipment for large runs, but has not yet met the need for short-run equipment.

Special purpose printing presses for labels and for flexographic printing of packaging materials have been shipped from the United States in sizable numbers, and the American share of this fast-expanding market is expected to remain stable. American suppliers of dilitho equipment have greater experience than their German counterparts and should be able to book substantial orders. UV dryers for offset presses will definitely be installed in increasing numbers, and U.S. producers should be able to compete well in this market.

The major third-country competition comes from Switzerland and Italy. Swiss firms such as Wifag and Messerli supply offset presses and dilitho equipment. Nebiolo and Cerutti Giovanni are among the Italian firms providing offset and letterpresses for small and medium runs. U.K. companies prominent in the market include Crabtree Vickers and MGD Graphic Systems Ltd., a subsidiary of the American producer. U.S. firms also control much of the production of presses shipped from France. Leading French firms are Marinoni, a subsidiary of Harris Intertype, and Creusot-Loire. Ribai of Japan sells small offset presses.

Domestic manufacturers are world renowned, and Koenig & Bauer claim that its Jumbo Courier is the fastest system with the highest performance in the field of newspaper letterpresses. The company's sales of printing equipment, primarily offset and letterpresses, reached some $35 million in 1976. Albert-Frankenthal (1976 graphics equipment sales of approximately $35 million) boasts the fastest gravure printing machines in the world. Heidelberger Druckmaschinen (about $100 million) and Roland ($70 million) are giants in the industry. MAN's sales (principally offset and letterpresses) reached about $20 million in 1976, and Goebel's gravure presses accounted for a major share of its $20 million in sales of printing machinery.

Bookbinding machinery.—American sales of bookbinding equipment jumped 37 percent in 1977 after several years of declining shipments. The upturn should continue, leading to $2 million a year in sales in 1981. U.S. firms supply a wide variety of equipment, but the deliveries of high performance machinery are expected to

show the steepest growth rates. Among the bestselling products are the following:

- Very advanced high-performance bookbinding equipment
- High-speed mass processing equipment
- High-speed collators
- High-speed saddle stitchers
- Relatively simple bookbinding machines
- Perfect binders
- High-speed and high-performance gathering machines
- Inserters
- Folding equipment for high-speed presses
- Packaging machines

Mergers and acquisitions within the book-producing sector have led to increased applications of book-finishing lines combining the various processes of collating, cutting, casing-in, gluing and/or stitching, and pressing. However, fully automated bookbinding systems are still the exception. There is a particular need for fast-working collators and saddle stitchers for binding pamphlets. Folding is usually carried out in the printing system. Folding equipment for high-speed presses is needed.

Machines for perfect binding have been sold in large numbers in the recent past. Many factors, especially the rising production of paperbacks, indicate a substantial demand for these machines. Another opportunity for expanded sales of bookbinding machines exists at the lower end of the market. In-plant and small commercial printers buy relatively simple bookbinding machines in order to become independent of the professional bookbinding houses.

Although domestic manufacturers supply most of the bookbinding equipment, the share provided by imports has expanded considerably—from 21 percent in 1972 to 28 percent in 1977 and a projected 30 percent in 1981. Printers are finding better prices and more specialized systems abroad. For example, Gruner & Jahr purchased collating, folding, and stitching equipment in America for its recently opened gravure printing plant, the largest and most advanced in Germany.

The earlier decline in U.S. sale was due primarily to new competition from overseas subsidiaries of American companies. In addition, some European companies have succeeded in shortening the U.S. lead in mass production and high-speed processing equipment. Swiss firms are the major foreign suppliers, and companies such as Mueller-Martini enjoy excellent reputations for quality bookbinding equipment.

Among domestic producers, Kolbus, with 1976 sales of $15 million to $20 million, manufactures bookbinding equipment and book production lines, and Wohlenberg, with sales of $10 million to $15 million, supplies paper-cutting and handling equipment. Collators are produced by subsidiaries of Addressograph Multigraph and Pitney Bowes.

Other equipment.—U.S. firms are among the important suppliers of additional printing equipment such as the following, which will be in considerable demand over the next 5 years:

- Mailers, particularly ink-jet mailers
- Stackers, counters, and bundlers
- Die-cutting machines for labels
- Feeders for sheet-fed presses
- Strapping equipment
- Shrinking tunnels
- Densitometers
- Light integrating meters
- Sensitivity guides
- Star targets
- Dot gain and slur
- Viscosimeters
- Thickness gauges
- Tensiometers
- Hygrometers
- Special pH papers
- Electronic, digitalized pH meters
- Recycling systems for plastic-plate washout equipment
- Silver, zinc, and other heavy metal recovery systems
- Mist control instruments
- Noise suppression devices

The market for mailers used in the printing industry was estimated at $1.5 million to $2 million in 1975. Replacement of outdated equipment and the need for faster mailers should produce a 7 percent to 8 percent growth rate per annum and a 1981 market of $2 million to $3 million. The trend is toward faster and cheaper methods—direct printing of addresses on the printed matter or the use of nonself-adhesive labels. Mailers are needed mostly by publishers of trade papers who send virtually all their copies by mail; magazines and newspapers use them to a far lesser extent. Book clubs use mailing machines for distributing books to their members.

Ink-jet mailers are in growing demand for their speed, and the use of computer-stored address files is gaining ground. Book clubs and large technical trade organizations which send out publications to hundreds of thousands of subscribers apply this method. At the other end of the scale, many small printing and publishing houses still have hand-operated or semiautomatic mailing machines, but these are being upgraded for reasons of cost effectiveness.

About 30 percent of mailers are imported, Switzerland being the most important source. Several U.S. companies occupy leading positions in the market, but their

Table 14.—Germany: Production of books, newspapers, and magazines, 1972, 1975, and 1981

	Number of titles			Number of copies[1] (in millions)		
	1972	1975	1981	1972	1975	1981
Books						
Hardbound	43,289	38,688	36,000	85.0	90.0	105
Paperbound	3,460	4,961	6,000	40.0	50.0	75
Newspapers						
Daily	415	410	380	23.3	24.4	29
Weekly	58	55	50	2.2	2.1	3
Magazines						
Biweekly	80	90	75	9.8	11.5	15
Monthly	630	650	650	24.6	25.1	30
Other frequencies	56	45	10	4.9	4.2	5

[1]For newspapers and magazines, circulation figures are given.

Source: Official German trade statistics and estimates.

goods are produced primarily in Europe. Ink-jet mailers are produced in Europe under U.S. license.

Sales of materials handling equipment for the printing trades are expected to advance from an estimated $4 million in 1975 to some $5.5 million or $6 million in 1981. More than a third of this equipment is imported. U.S. producers sold feeders for sheet-fed presses value at $800,000 in 1975, and demand is rising along with the use of high-speed sheet-fed offset presses.

All kinds of high-performance feeders and conveyers are being purchased to match high-output presses. Systems which permit dispatch of bundles or packages of printed matter in varying sizes to various customers are selling well. Packaging of papers and magazines in shrunk plastic is increasingly employed, creating demand for shrinking tunnels.

Printers spent $4 million in 1975 for quality control equipment (sold separately), and 1981 expenditures of at least $6.5 million are predicted. There is a marked trend toward integration of more and more control instruments into printing and photographic systems. Printers are especially concerned about closed-loop solutions that control web tension, ink viscosity, and ink mist suction.

Densitometers are the most important single item for quality control in prepress activities. The market for densitometers to be used in conjunction with process cameras comprises some 700 units per year for a total of $1.5 million, most of it from American suppliers. U.S.-made densitometers are considered to be among the best on the market, and sales by U.S. firms are projected to approach $1 million in 1981.

Quality controls for platemaking are of increasing importance. These devices are the domain of graphic arts research institutes such as FOGRA (Germany) and UGRA (Switzerland), which developed their own designs. GATF of the United States is active in this segment to a certain extent.

Other quality control instruments needed in growing numbers include viscosimeters, thickness gauges, tensiometers, and hygrometers. With the expansion of offset techniques, pH measurement has acquired greater significance. Test paper strips are normally used, but the trend is toward more sophisticated electronic, digitalized pH meters. U.S. firms were the first to introduce electronic instruments and digital displays; thus they captured and still hold a clear lead in the German market.

Investment in pollution control equipment by the printing industry was estimated at roughly $2 million in 1975, with 25 percent to 30 percent of this equipment imported. Regulations on pollution control are becoming more stringent, leading trade sources to project expenditures of $3.5 million in 1981. Emphasis is on control of ink and chemical disposal and on noise suppression. Recycling systems will be employed increasingly for washout of plastic plates. Other systems will be required to extract silver, zinc, and other heavy metals from effluents. U.S. companies are not well represented at this time but may gain in importance, because some problems which have not yet been solved in Germany are the subject of intensive research and development efforts in America.

Die-cutting equipment for labels should provide sales opportunities for U.S. manufacturers. Many more printing shops are adding equipment to produce labels or label-like forms.

U.S. Printed Product Exports To West Germany

The Federal Republic of Germany represents one of the largest markets for products of the U.S. printing and publishing industry. Germany's affluent, well educated population, combined with the printed communications needs of a highly industrialized society, pushed U.S. printed product exports to over $18.7 million in 1978. Between 1974 and 1978, U.S. printing and publishing exports to West Germany grew at the rate of 18 percent per year.

As shown in table 15, U.S. books account for 25-40 percent of annual printed product shipments to West Germany. By 1978, West Germany's purchases of U.S. books totaled $5.2 million. Sales of at least $1 million were recorded in each of three book categories: Textbooks, technical-scientific-professional books, and other books (fiction, nonfiction, adult trade, etc.). Over $500,000 in U.S. religious books were sold to West Germany in 1978, although shipments of U.S. encyclopedias dropped to $75,690 in 1978 from $248,495 in 1977.

While exports of U.S. books climbed at an average rate of 12.8 percent per year in the period 1974-78, exports of U.S. periodicals to West Germany surged ahead at an average annual rate of 15.7 percent between 1974-78. Periodical exports reached $3.6 million in 1978, with about one half of this volume consisting of primarily consumer oriented magazines. Business and professional magazines and journals registered U.S. export sales to West Germany of $266,025 in 1978.

Exports of U.S. commercial printers increased rapidly from 1974 to 1978. Shipments of labels, posters and advertising printed matter to West Germany all exceeded $500,000 in 1978, while U.S. exports of decals were $360,590. Publishers of catalogs and directories recorded exports of $675,752 in 1978, and music publishers noted exports of $266,641. Sales of miscellaneous printed products to West Germany totaled $6.2 million, rounding out the various U.S. export categories of graphic arts products.

The Printing Industry

Printing industry sales topped $5 billion in 1975 and are advancing by 4.4 percent annually (see table 12). At that rate, output should reach almost $7 billion in 1981. The rising standard of living has bred higher levels of education and heightened demand for information among the general population, boosting sales of books, newspapers, and periodicals. Advanced techniques of word and text processing have offered further inducement to the generation of quantities of reading matter.

Fierce competition for the consumer Deutsche mark has kept advertising revenues high and stimulated greater output of associated printed goods. Mail-order houses are expanding rapidly and publishing ever bigger and better catalogs and a large number of special brochures. Package printing is flourishing and becoming more elaborate. Television has absorbed considerable advertising money already, and is not expected to have any further detrimental effect on the printing industry in the immediate future.

In the world of commerce, computers have both helped and hindered the printing trades. Business forms printers now have higher sales than any other sector in the German industry. Computers also compete with conventional presses in many operations.

Exports of printed goods amounted to $558 million or 11 percent of output in 1975 and are still climbing. German printers supply primarily the other German-speaking countries, Switzerland and Austria. Technical textbooks and periodicals are marketed throughout Europe and in all other developed countries. A major source of revenue is sales literature produced for companies exporting their products to Germany. The high quality of German printing technology also attracts overseas customers for cartographic products, bank notes, and art reproductions.

Despite proliferating demand for its products, the printing industry is facing serious financial problems created largely by soaring wages. Workers in the printing trades are among the best paid in Germany—they are traditionally considered the intelligentsia of the labor force, and they are tightly organized in trade unions. In 1976, a critical year for the German economy, the printer's union was the only one to strike for its demands. Labor costs now run from 70 percent to 85 percent of total operating expenses.

Printers have tried to solve their costs squeeze with capital-intensive techniques, and to some extent they have succeeded. The use of advanced equipment enabled the industry to increase output by almost 100 percent between 1970 and 1976, while the number of employees declined 25 percent to 180,000 (and wages rose 70 percent). The trend toward higher output per employee through investment in advanced technology is expected to continue, and industrywide employment is projected to fall to 160,000 by 1981. This has not pleased the unions, whose latest demands are now directed toward maintaining the number of existing jobs in individual companies.

Having been forced by heavy competition to purchase new machinery, companies have expanded their capacities and frequently overtaxed their financial strength. These

Table 15.—U.S. Exports of Printed Products to West Germany: 1974-78

Product	1978	1977	1976	1975	1974
Total	$18,727,934	$12,910,341	$11,098,244	$9,818,806	$9,669,092
Books, total	5,166,706	3,714,375	3,434,301	3,752,574	3,188,684
Religious	549,338	382,151	183,295	168,189	92,706
Dictionaries	10,355	59,980	10,680	13,840	29,958
Encyclopedias	75,690	248,495	221,919	185,323	201,466
Textbooks	1,093,102	989,686	1,525,990	1,513,382	956,237
Professional	1,600,953	847,435	760,743	620,380	1,027,820
Children's picture	7,138	—	1,360	2,954	13,104
All other	1,830,130	1,186,628	730,314	1,248,506	867,393
Periodicals, total	3,596,630	2,746,545	2,262,535	1,688,933	2,010,848
Business	266,025	263,274	204,283	234,356	237,747
Bound	1,563,613	n.a.	n.a.	n.a.	n.a.
All other	1,806,992	2,265,512	1,742,343	1,315,419	1,737,254
Labels	539,512	651,156	278,718	163,748	212,391
Catalogs and directories	675,752	318,902	353,741	182,369	268,994
Posters	800,538	n.a.	n.a.	n.a.	n.a.
Advertising printed matter	983,780	1,903,712	1,420,338	1,297,514	1,034,270
Music, in books & sheets	266,641	165,272	85,152	126,612	203,312
Decals	360,590	184,507	113,227	42,361	154,984
Playing cards	101,856	54,194	88,649	61,367	62,871
All other printed matter	6,235,929	3,171,678	3,061,583	2,503,328	2,532,738

n.a.—Not available.
—Represents zero.
Note: Does not include individual shipments valued under $250.
Source: U.S. Department of Commerce, Bureau of the Census.

difficulties are reflected in the large number of bankruptcies recorded in recent years. Mergers and failures are expected to reduce the number of firms from 7,000 in 1975 to 6,800 by 1981. However, it is generally assumed that the worst is over, and a financially solid basis has been established for future investments. Industry sources confidently forecast capital expenditures totaling $450 million in 1981 (see table 13).

Newspapers.—Despite many economic difficulties, not the least of which is competition from television, newspaper publishers are expected to hold their own and even show a moderate 3 percent growth in sales—from $950 million in 1975 to $1.1 billion in 1981. Profitability varies widely within the sector. A large number of local and regional dailies, especially those with no local rival or with the highest circulations in their regions, benefit from the large and still climbing advertising expenditures of industry; competing papers are left financially weak. In some cases, national newspapers are encountering difficulties and must be subsidized by other divisions within their organizations. On the other hand, tabloids are flourishing, and *Bild-Zeitung*, the only national tabloid, is extremely profitable.

To balance these differences, the sector is concentrating resources and some companies are merging. The number of newspaper titles is expected to drop from 465 in 1975 to 430 by 1981, but circulation is projected to rise from 26.5 million to 32 million (see table 14). The number of titles is somewhat misleading because the same paper is frequently published under different names. Very often political and economic news pages are prepared by an editorial staff working for several papers, and only local news pages are edited and printed locally. Many weaker papers are forced by their financial condition to cooperate with their competitors on joint advertising tariffs, sales organizations, printing, and, in extreme cases, editing. It is not unusual for a paper to be produced in the printing house of a rival.

As the sector consolidates, capital expenditures are projected to rise by a significant 9.5 percent annually, from $70 million in 1976 to $110 million in 1981. Roughly two-thirds of investment will be in new equipment, with the emphasis on high-speed and high-output systems. In general, newspapers are still printed on rotary letterpresses. As of late 1976, only 77 newspapers were printed on offset presses and 6 on gravure equipment. Several web offset printing systems have been ordered, and the use of offset is expected to increase. Axel Springer has earmarked $10 million for expansion of its offset printing plant in Kettwig. However, the future technical trend in this sector is still somewhat uncertain. Most newspaper houses will stay with letterpresses because the

equipment already installed is modern and in good working condition. There is much talk of conversion to dilitho, and from 5 to 10 firms are expected to introduce such equipment in the next 2 years. Industry experts in Germany no longer consider dilitho a provisional measure before switching to offset, but a solution in itself.

About 40 to 50 newspaper printers use plastic plates on rotary letterpresses, and this figure will rise rapidly in coming years when the method has proven its reliability in practice and has demonstrated that it meets the high demands for quality. Increased use of gravure presses is a real possibility.

Phototypesetting techniques have achieved great importance in the sector, and most the country's advanced, high-speed systems are used in newspaper and magazine houses. However, full-page photocomposition systems are rare. Only two papers, one of them *Stars and Stripes*, operate video display on-line input, but the systems are not fully utilized because of worker objections.

OCR readers are employed in newspaper printing but have encountered resistance from trade unions. In most cases, they are used for transfer of text to punched tapes which control cast-metal typesetting machines. Advanced camera processor systems and film developing machines constitute standard equipment. Computers are used to hyphenate and justify, to store and process typed copies, and to control the printing process itself. The sector is also trying to develop methods to proofread texts electronically.

The trend toward decentralized printing of daily newspapers at several locations is promoting increased use of digitalized and laser-operated facsimile transmission equipment. High-performance devices for folding, collating, and packaging are needed in growing numbers to keep pace with high-output printers.

Magazine publishing and printing.—Shorter working hours coupled with higher earnings have created a favorable climate for vendors of magazines and popular periodicals. The large German magazine publishing houses have come through the recession in good shape. Advertising revenues rose 20 percent in 1976, and circulation has stabilized at a high level. Sales for the sector are projected to mount by nearly 4.5 percent per annum between 1975 and 1981 to over $1 billion a year.

Publishers of technical periodicals, which also play an important role in the sector, are not faring as well. Industry has cut its advertising in trade papers, and the availability of technical journals in public or company libraries where they can be readily borrowed or copied has decreased circulation. Growing competition is expected to further reduce the number of titles.

Capital expenditures for the sector are forecast to climb by an average 9 percent annually between 1976 and 1981, rising to $85 million a year; investment in graphic industries equipment is projected to reach $58 million in 1981. The fact that the printing of mass circulation magazines is concentrated in a small number of plants favors the use of the most advanced techniques. Thus 31 companies (4 percent of the sector) employ gravure presses to print nearly 60 percent of the copies.

Phototypesetting is widespread in the sector. Composing systems of the latest design are employed, and magnetic tapes and OCR readers are used for copy entry. Photographic equipment is similarly advanced. The most sophisticated process systems, developers, and color composing cameras are installed. Maximum picture reproduction quality is achieved by electronically controlled exposure, and optical scanners are used by many printers.

In large plants, computer control is considered indispensable to ensure speed and quality of production and to reduce waste. Computers regulate web tension, paper guides, ink flow, ink mist, and paper moisture and electrostatic values. High-performance collating and binding systems process up to 2 million copies within a few hours.

Commercial printing.—Out of the 2,000 commercial printing establishments operating in 1975, some 110 had more than 100 employees, including 10 with more than 500 workers. Sales topped $1 billion in 1975 and are projected to rise by nearly 5 percent yearly to $1.4 billion in 1981. However, profits are low, and competition is fierce. The recession sharply reduced orders for advertising material, an important product for the sector. In order to utilize existing machine capacity, printers are agreeing to prices which barely cover costs.

Two trends are operating in the commercial printing sector. On the one hand, simple printed matter is being produced as quickly and cheaply as possible, and many old, established firms are losing this business to the new instant-print shops and in-house printing plants. On the other hand, demand for high-quality printed matter is increasing. Many companies are modernizing their machinery to meet these requirements, and capital expenditures are forecast to advance by 6 percent per year, from $30 million in 1976 to $40 million in 1981, with some 85 percent allocated for equipment.

Most commercial printers still use letterpresses, but 44 percent of the companies have installed offset equipment, which accounted for 53 percent of sales in 1975. The 48 shops with rotogravure presses garnered 24 percent of sales. Phototypesetting, electronically controlled process cameras, and automated plate processing have now become standard features in large companies. A great number of sheet-fed letterpresses are equipped to use Nyloprint or other photopolymer plates. Simple, monocolor sheet-fed offset equipment with automated plate processing units are widely used by quick-printing shops, but also are being purchased in increased numbers by conventional printers. Highly sophisticated machinery

is used to meet the exacting demands placed on printers of catalogs, operational instructions, and advertising materials.

Book publishing.—Even in 1975, a year of recession, book publishers increased their sales 5 percent to $450 million. With the recession ending, greater purchasing power and more leisure time plus the need for more information are expected to further invigorate the book market. Nearly 44,000 titles were published in 1975, about 11 percent of them paperbacks. More titles will be coming out in paperback, and more copies per title will be printed in the next 5 years.

Twenty companies have more than 500 employees, and another 300 of the sector's 800 firms have more than 100 workers. Both number of companies and number of employees are dropping as the sector consolidates. Capital expenditures are forecast to reach $35 million in 1981, including $26 million for graphic industries equipment.

Sophisticated phototypesetting and offset printing methods are already used widely by large companies in the book publishing sector. The need for superior typography in this sector requires phototypesetting systems with interchangeable fonts. The emphasis is on economy and high-quality typeface rather than on speed, so installed equipment tends to be in the low- to medium-performance category. Processors for justification and hyphenation are particularly important.

In 1976, about 60 percent of the books were produced by 37 percent of the firms on offset presses. The share of offset printing will grow further, and both automatic sheet-fed machines and web-fed presses will be installed. Gravure presses will be equipped with plastic plates. This sector is especially suited to such innovations because valuable gravure-printed books are normally produced in small quantities.

Many book producers have their own bookbinding plants. In most houses, bookbinding is semiautomated, and printers value machines which can be linked into continuous production lines. Flexibility and quick changeover to new series are important factors in selecting equipment, because editions are often relatively small. No complete printing and binding production lines have yet been installed.

Business forms printing.—Printing of business forms, already the largest sector in the German printing industry with 1975 sales of $1.2 billion, is projected to increase sales by 5 percent per year to $1.6 billion in 1981. Efforts to simplify communication have led to greater use of preprinted forms in administration and commerce. The proliferation of small business computers and intelligent terminals which operate as data entry stations also augments demand for business forms. Labels are required in growing numbers and with greater sophistication.

Some 2,500 companies currently produce business forms; 10 have more than 500 employees. Capital expenditures are forecast to reach $35 million in 1981, including $30 million for printing equipment. Simple photosetting systems normally satisfy the requirements of this sector. However, a large number of different type sizes are needed for each unit, and ruling machines are used.

Letterpresses produced 73 percent of business forms output in 1975, compared to 25 percent from offset equipment and 2.3 percent from gravure. The use of sheet-fed offset with plate processors is increasing, and printers are installing more special machines for making computer-compatible vouchers, rotary web offset presses for continuous forms for computer use (particularly short-run machines), and equipment for producing snap-out forms. Collating and binding of forms have acquired greater importance with the development of self-duplicating paper, which simplifies entries on multiple copies.

Package printing.—The amount of packaging materials used by industry has stagnated in recent years as a result of efforts to conserve following the rapid increase in oil prices. A renewed upward trend in package materials printing is now occurring, and the number of companies engaged in this activity is forecast to advance from 500 in 1975 to 550 in 1981. Sales are expected to increase from $315 million to $425 million in the same span. However, this turnover reflects only part of the real outlay for package materials printing, because packaging and printing are normally carried out in one operation by the manufacturing or foodstuffs industry.

Package printing is an extremely important form of advertising in Germany, more so than in many other Western countries. Plain brown paper bags are inconceivable to the German merchant. Packages are expected to identify contents and carry price, manufacturing data, and storage information. The trend is toward multiple packaging. Each individual article is packaged, boxed with several others, then packed in a carton with other boxes. Each of these containers is printed to provide a sales incentive and give information for the trade and the consumer. The rise of self-service in the retail trades has intensified the need for individual wrapping.

Another important trend is the decline in the use of disposable cans and bottles. More printed labels are required, and direct printing on bottles and cans is decreasing. Wide use is made of flexographic techniques for printing on plastic and, in some cases, on metal. Offset presses are important for printing on paper and accounted for 58 percent of output in 1975. Gravure methods are becoming prominent, accounting for 20 percent of the

package printing in the same year. Special relief stamping machines often are required for adding dates, and machines for printing on plastic sheet materials for packaging by shrinking methods are being introduced.

Service industries.—The 400 companies that provide services to the printing industry are divided into three types of establishments—letterpress plate engraving shops, typesetting firms, and bookbinding houses. Sales totaled $280 million in 1975 and are expected to rise to $400 million a year by 1981. Capital expenditures are projected to reach $25 million in 1981, with $20 million budgeted for graphic industries equipment.

The significance of plate engraving shops is lessening. Many of them produce conventional metal or plastic picture stereos. Now that equipment for picture printing is operated in printing plants, plate engraving houses are forced to give more attention to producing photolithos and polymer plates for letterpress printing. Camera processors and photographic systems have been set up in fairly large numbers, but more will probably be added in the near future.

Some printing houses, even large ones, do not have their own typesetting departments but rely on specialized typesetting firms. The equipment and techniques of these specialist shops often represent the latest state of the art, and many refer to themselves as "computer setting" shops. Their sales are enhanced by trends toward division of labor within the printing industry and toward specialization in computerization. Because much of their work includes updating printed matter such as address directories and time schedules, software for computer programming is essential.

Bookbinding shops range from quite small to very large and constitute a significant service industry. Small firms bind doctoral theses, periodicals into annual volumes for libraries, and catalogs for inplant printers: large houses operate sophisticated equipment for mass volume output for big printing and publishing houses.

In-plant printing.—Some 2,200 in-plant printing shops with a total of 9,800 employees were active in 1975. Capital expenditures are forecast to reach $30 million in 1981, with $26 million spent for equipment. High growth rates are expected for the sector now that new printing techniques provide quality products at low cost, using relatively unskilled labor. Machine and staff capacity are usually planned to ensure full-time utilization of capacity; peak loads are contracted out to commercial printers.

In-plant printing shops usually employ small offset printing systems (especially complete systems with plate processors), photolettering units, and easy-to-handle process cameras. In some companies, package printing is conducted, and retailers sometimes print their own labels.

STATISTICAL SERIES

Table S-1.—U.S. Exports of Books, Periodicals, Other Printed Matter, and Printing Plates, January-March 1979

Description and Schedule B Number	January-March 1979	Percent change from January-March 1978
Grand total	$229,291,709	+24.3
Printing plates and cylinders (6683510)		+45.1
Printed matter, total	220,772,799	+23.7
Registers, account books, exercise books, note books, order books, diaries (2565920)	757,628	+13.4
Manifold business forms (2565940)	710,665	-8.7
Albums and scrapbooks, including record, photograph and stamp (2566000)	861,203	+62.7
Loose leaf binders (2566320)	730,811	+40.7
Paper or paperboard labels, printed (2566620	3,381,960	+12.6
Catalogs (2703085)	2,909,268	+4.2
Directories (2703095)	1,021,406	-1.3
Posters, commercial, except tourist (2707200)	1,321,121	+38.4
Tourist literature and posters (2707300)	495,377	+3.3
Advertising printed matter (2707400)	5,628,439	-9.4
Newspapers, unbound, single-issue (2707600)	1,516,279	-6.4
Newspapers, bound, multiple-issue (2707820)	280,116	+18.6
Periodicals, bound, multiple-issue (2707840)	17,846,970	+42.6
Periodicals, business and professional (2708220)	973,369	-37.2
Periodicals, other than business and professional (2708240)	50,897,933	+27.0
Music, books (2731020)	1,771,331	+30.3
Music sheets (2731040)	249,496	+31.8
Maps, charts, atlases, globes (2733200)	2,737,111	+9.6
Decalcomanias and pressure sensitives (2736000)	4,399,776	+52.2
Picture postcards (2738500)	101,532	+25.4
Greeting cards (2740100)	1,541,784	+1.0
Calendars, paper (2743000)	373,978	+70.0
Printed matter, n.s.p.f. (2749540)	19,221,103	+19.6
Playing cards (7342500)	2,820,759	+53.2
Books, total	98,223,384	+24.5
Bibles, Testaments, and other religious books (2703020)	5,101,093	+4.3
Dictionaries and thesauruses (2703040)	1,791,196	+5.4
Encyclopedias (2703060)	8,324,138	-0.3
Textbooks (2703070)	17,357,461	+20.1
Technical scientific and professional books (2703080)	13,212,474	+13.3
Books, n.s.p.f. (2704000)	51,152,094	+39.7
Children's picture and painting books (7375200)	1,284,928	+7.3

Note: Data do not include individual shipments valued under $250, and low-valued exports by mail.

n.s.p.f.—Not specially provided for.

Source: U.S. Department of Commerce, Bureau of the Census.

Table S-2.—U.S. Exports of Books, Periodicals, Other Printed Matter, and Printing Plates, by Principal Markets, January-March 1979

Principal markets	January-March 1979	Percent change from January-March 1978	Principal markets	January-March 1979	Percent change from January-March 1978
Australia	$17,703,347	+37.2	Mexico	$5,518,270	+19.8
Belgium-Luxembourg	1,489,180	+35.8	Netherlands	5,323,858	+15.4
Brazil	2,467,269	−10.6	New Zealand	3,278,664	+142.9
Canada	103,567,233	+17.7	Nigeria	1,098,371	+136.3
Colombia	1,318,226	+55.7	Panama	1,169,759	+44.5
Denmark	870,082	+39.3	Peru	372,927	+2.4
Dominican Republic	853,440	+10.9	Philippines	3,007,345	+57.0
France	4,589,637	+29.0	Republic of South Africa	1,987,472	+36.0
Hong Kong	1,563,762	+35.2	Saudi Arabia	2,828,843	+10.5
India	1,373,941	+5.7	Singapore	2,144,540	+26.1
Indonesia	78,341	−85.5	Spain	1,061,097	+83.1
Iran	63,787	−92.2	Sweden	1,653,110	+9.8
Ireland	827,395	+14.4	Switzerland	1,646,066	+15.9
Italy	1,619,710	−11.3	United Kingdom	21,322,958	+37.6
Jamaica	331,134	−49.8	Venezuela	5,375,016	+38.1
Japan	9,923,098	+17.0	West Germany	5,431,828	+51.8

Note: Data do not include individual shipments valued under $250, and low-valued exports by mail.

Source: U.S. Department of Commerce, Bureau of the Census.

Table S-3.—U.S. Imports of Books, Periodicals, Other Printed Matter, and Printing Plates, January-March 1979

Description and TSUSA Number	January-March 1979	Percent change from January-March 1978
Grand total	$110,787,812	+3.7
Printing plates and cuts (all processes) (6683800)	282,632	-30.4
Printed matter, total	110,505,180	+3.8
Diaries, notebooks, and address books (2565600)	1,653,227	+21.6
Other blankbooks (2565800)	142,598	+22.0
Albums (autograph, photograph, record, stamp) (2566000)	6,023,721	-11.5
Newspapers (2705500)	3,961,493	-54.1
Periodicals (2706300)	13,490,833	+84.9
Tourist literature about places outside the U.S. (2707000)	2,568,967	+9.9
Printed catalogs offering U.S. products (2704500, 2705000)	563,434	-47.9
Catalogs, price lists, and trade notices of foreign businesses (2708500)	3,337,393	+16.0
Music in books or sheets (2731000)	1,608,383	+140.3
Globes (2733000)	81,290	+1.7
Maps, charts and atlases (2733500)	1,374,632	-1.3
Decalcomanias in ceramic colors (2736500, 2737000)	976,038	+30.6
Other decalcomanias (2737500, 2738000)	6,758,896	+28.0
Postcards (2738500-2739500)	221,234	-8.0
Greeting cards and social and gift cards, with words (2740500)	1,252,136	-8.5
Other greeting cards and social and gift cards (274000)	73,133	+254.2
Calendars of paper (2741000-2742000	646,965	+1.5
Labels, flaps, and bands (2742300-2743500)	787,718	+49.3
Pictorial matter, lithographed (2746040, 2746500)	1,250,831	+17.3
Pictorial matter, nonlithographed (2747040)	2,693,013	+36.7
Posters (2746020, 2747020, 2747520)	857,840	+19.9
Printed matter, n.s.p.f., suitable for use in book production (2747300)	456,274	-10.4
Other printed matter (2700500-2701500, 2747560-2748500, 2749040)	7,890,089	+12.2
Manifold business forms (2747540, 2749020)	109,627	+52.1
Playing cards (7342500)	656,730	-3.8
Books, total	51,068,693	-3.8
Bibles and prayer books (2702520)	1,613,821	-59.1
Books, foreign language (2702540)	5,770,829	+14.4
Other books, n.s.p.f., wholly or in part the work of an author who is a U.S. National or domiciliary (2702560)	572,166	-50.7
Other books (2702580)	42,796,419	+0.5
Toy books and coloring books (7375200)	315,458	-16.6

Note: Data do not include individual shipments valued under $250, and low-valued nondutiable imports by mail.

n.s.p.f.—Not especially provided for.

Source: U.S. Department of Commerce, Bureau of the Census.

Table S-4.—U.S. Imports of Books, Periodicals, Other Printed Matter, and Printing Plates by Principal Suppliers, January-March 1979

Principal suppliers	January-March 1979	Percent change from January-March 1978	Principal suppliers	January-March 1979	Percent change from January-March 1978
Austria	$317,651	-10.1	Japan	$12,349,395	-4.3
Belgium-Luxembourg	1,328,323	-7.3	Korea, Republic of	4,593,456	-2.7
Canada	19,688,254	+6.0	Mexico	2,966,240	-2.2
China (Taiwan)	1,303,938	+77.1	Netherlands	3,674,297	+52.2
Colombia	1,566,584	+516.8	Singapore	523,572	+148.6
Denmark	545,877	+13.3	Spain	4,465,361	+31.8
France	2,885,504	-10.9	Sweden	711,053	-4.4
Hong Kong	3,482,547	+31.0	Switzerland	2,447,863	-1.8
Israel	780,828	+2.2	United Kingdom	28,276,484	-10.8
Italy	7,363,368	+25.1	West Germany	8,537,076	+5.4

Note: Data do not include individual shipments valued under $250, and low-valued nondutiable imports by mail.

Source: U.S. Department of Commerce, Bureau of the Census.

Table S-5.—Selected U.S. General Business Indicators, Annual Average 1977, and 1978-79 by Quarters

Economic indicators		First quarter		Second quarter		Third quarter		Fourth quarter		Annual average
		1979[p]	1978	1979	1978	1979	1978	1979	1978[r]	1977
NATIONAL INCOME AND PRODUCT[a]										
National income	bil.$	1,835.4	1,603.1		1,688.1		1,728.4		1,795.6	1,515.3
Compensation of employees	do	1,405.9	1,241.0		1,287.0		1,317.1		1,359.8	1,153.4
Wages and salaries	do	1,184.5	1,050.8		1,090.2		1,113.4		1,149.4	983.6
Supplements to wages, salaries	do	221.4	190.2		197.6		203.6		210.4	169.8
Personal income	do	1,834.1	1,628.9		1,682.4		1,731.7		1,789.0	1,529.0
Disposable personal income	do	1,563.5	1,391.6		1,433.3		1,468.4		1,513.9	1,303.0
Personal consumption expenditures	do	1,444.7	1,276.7		1,322.9		1,356.9		1,403.9	1,206.5
Gross national product	do	2,265.6	1,992.0		2,087.5		2,136.1		2,214.8	1,887.2
Manufacturers' new plant and equipment exp.	do	71.97	61.57	n.a.	67.20	n.a.	67.75	n.a.	73.24	60.16
PURCHASING POWER OF THE DOLLAR[a]										
As measured by:										
Whole prices	1967 = $100	.482	.532		.518		.509		.498	.554
Consumer prices	do	.483	.531		.517		.505		.495	.551
INDUSTRIAL PRODUCTION INDEX (FRB)[b]										
All manufacturing	1967 = 100	152.8	138.5		146.6		147.0		150.4	137.1

Note: [r]Revised. [p]Preliminary. n.a.—not available. [a]*Survey of Current Business*. Bureau of Economic Analysis. Quarterly data are seasonally adjusted at annual rates. [b]FRB—Federal Reserve Board. Data are without seasonal adjustment.

Table S-6.—Selected U.S. Printing and Publishing Industries Statistics, Annual Average 1977 and 1978-79 by Quarters

Economic indicators	First quarter		Second quarter		Third quarter		Fourth quarter		Annual average
	1979[p]	1978	1979	1978	1979	1978	1979	1978[r]	1977
PRINTING AND PUBLISHING INDUSTRIES (SIC 27)									
Production index (FRB)[a] ..... 1967 = 100	126.0	118.9		127.7		140.5		132.4	124.7
Corporate sales[b] ..... mil.$	13,661	12,350		13,191		13,602		14,445	*46,687
Corporate net profits:[b]									
Before taxes ..... do	1,326	1,119		1,508		1,543		1,724	*6,759
After taxes ..... do	770	611		850		840		1,010	*2,663
Percent of sales	5.6	4.9		6.4		6.2		7.0	5.7
All employees[c] ..... thous	1,211.3	1,161.6		1,178.2		1,183.2		1,200.7	1,137.9
Production workers ..... do	682.6	623.3		665.8		662.9		673.9	644.3
Average weekly earnings ..... $	250.99	236.31		238.99		246.25		252.29	230.35
Average hourly earnings ..... $	6.72	6.35		6.39		6.52		6.63	6.11
Average weekly hours	37.4	37.2		37.4		37.8		38.0	37.7
NEWSPAPERS (SIC 271)									
Advertising Expenditures (64 cities)[d] ..... mil.$	1,721.0	1,502.3		1,800.0		1,509.8		1,831.7	*5,696.1
All employees ..... thous	413.8	402.0		405.8		406.6		410.4	395.2
Production workers ..... do	166.1	166.7		166.7		163.3		164.6	168.1
Average weekly earnings ..... $	239.61	229.96		234.27		234.14		241.31	224.01
Average hourly earnings ..... $	7.03	6.81		6.87		6.85		6.95	6.55
Average weekly hours	34.3	33.8		34.1		34.2		34.7	34.2
PERIODICALS (SIC 272)									
Advertising cost, total[e] ..... mil	555.3	484.0		633.4		525.7		766.8	*1,976.8
All employees ..... thous	80.9	77.3		77.3		79.2		80.7	74.6
Production workers ..... do	13.9	15.6		15.3		14.3		14.0	14.4
Average weekly earnings ..... $	235.29	225.66		217.88		226.93		234.54	222.26
Average hourly earnings ..... $	6.14	5.88		5.72		5.85		6.05	5.88
Average weekly hours	38.3	38.4		38.1		38.8		38.8	37.8
BOOK PUBLISHING (SIC 2731)									
All employees ..... thous	73.7	71.4	n.a.	72.4	n.a.	71.4	n.a.	71.1	183.1
Production workers ..... do	28.3	26.2		27.2		25.1		24.9	132.5
Average weekly earnings ..... $	218.54	209.24		211.45		227.51		222.80	252.20
Average hourly earnings ..... $	5.58	5.67		5.31		5.58		5.67	6.50
Average weekly hours	39.2	39.2		39.8		40.8		39.3	38.8
BOOK PRINTING (SIC 2732)									
All employees ..... thous	31.4	31.1		31.6		30.3		31.1	30.6
Production workers ..... do	26.6	26.5		26.8		25.5		26.2	25.9
Average weekly earnings ..... $	241.52	225.66		226.83		236.98		242.75	223.44
Average hourly earnings ..... $	6.33	5.71		5.77		6.10		6.13	5.49
Average weekly hours	38.1	39.5		39.3		39.2		39.6	40.7
MISCELLANEOUS PUBLISHING (SIC 274)									
All employees ..... thous	48.3	45.0		46.2		46.0		47.3	43.6
Production workers ..... do	30.2	26.9		27.7		27.6		29.3	23.9
Average weekly earnings ..... $	206.45	205.47		207.59		209.01		214.73	207.65
Average hourly earnings ..... $	5.91	5.60		5.69		5.76		5.92	5.45
Average weekly hours	34.9	36.7		36.5		39.3		36.3	38.1
COMMERCIAL PRINTING (SIC 275)									
All employees ..... thous	391.7	368.6		378.1		379.7		389.1	367.0
Production workers ..... do	289.7	273.5		278.8		280.3		288.3	274.7
Average weekly earnings ..... $	267.97	249.65		252.71		262.92		268.42	239.46
Average hourly earnings ..... $	6.96	6.52		6.59		6.77		6.88	6.14
Average weekly hours	38.5	38.3		38.4		38.8		39.0	39.0
COMM. PRTG., EXC. LITHO (SIC 2751)									
All employees ..... thous	168.7	160.8		163.6		165.0		169.1	206.7
Production workers ..... do	124.3	119.4		120.9		122.1		125.6	156.9
Average weekly earnings ..... $	248.46	236.71		238.30		236.85		248.56	230.27
Average hourly earnings ..... $	6.52	6.18		6.24		6.40		6.45	5.95
Average weekly hours	38.1	38.3		38.2		38.6		38.5	39.2

See footnotes at end of table.

Table S-6.—Selected U.S. Printing and Publishing Industries Statistics, Annual Average 1977 and 1978-79 by Quarters—Contd.

Economic indicators	First quarter		Second quarter		Third quarter		Fourth quarter		Annual average 1977
	1979[p]	1978	1979	1978	1979	1978	1979	1978[r]	
COMM. PRTG., LITHO (SIC 2752)									
All employees.....thous.....	201.4	186.9		191.8		193.5		198.6	183.1
Production workers.....do.....	147.5	135.8		139.1		140.8		145.1	132.5
Average weekly earnings.....$.....	279.52	258.56		262.11		272.15		280.40	252.20
Average hourly earnings.....$.....	7.21	6.77		6.82		6.98		7.12	6.50
Average weekl- hours.....	38.8	38.2		38.4		39.0		39.4	38.8
MANIFOLD BUSINESS FORMS (SIC 2761)									
All employees.....thous.....	46.9	43.5		44.2		44.8		46.0	42.1
Production workers.....do.....	33.8	31.2		31.6		32.3		33.4	29.9
Average weekly earnings.....$.....	265.40	240.53		245.64		254.14		265.63	231.26
Average hourly earnings.....$.....	6.44	5.97		6.07		6.16		6.30	5.71
Average weekly hours.....	41.2	40.3		40.5		41.2		42.1	40.5
BOOKBINDING AND RELATED INDUSTRIES (SIC 278)									
All employees.....thous.....	62.4	59.3	n.a.	60.1	n.a.	62.2	n.a.	62.3	57.7
Production workers.....do.....	51.5	48.6		49.6		51.5		51.3	47.3
Average weekly earnings.....$.....	202.02	190.74		190.70		195.75		200.97	182.75
Average hourly earnings.....$.....	5.22	4.86		4.92		5.01		5.08	4.71
Average weekly hours.....	38.7	38.5		38.7		39.1		39.5	38.8
PRINTING TRADE SERVICES (SIC 279)									
All employees.....thous.....	39.9	39.4		39.4		39.0		39.8	38.8
Production workers.....do.....	29.1	29.1		28.6		28.3		29.0	29.0
Average weekly earnings.....$.....	336.36	310.92		315.75		329.38		333.60	298.37
Average hourly earnings.....$.....	9.19	8.24		8.28		8.50		8.68	7.77
Average weekly hours.....	37.8	37.7		38.1		38.7		38.4	38.4

Note: [r]Revised. [p]Preliminary. n.a.—not available. *Cumulative. [a]FRB—Federal Reserve Board Data are without seasonal adjustment. [b]*Quarterly Financial Report*, Federal Trade Commission. [c]Employment and earnings data from U.S. Department of Labor, Bureau of Labor Statistics (BLS). Data reflect 1978 revised benchmarks; data prior to 1978 also revised. [d]Media Records, Inc. Data are three months totals. [e]Publishers' Information Bureau, Inc. Data are three months totals.

Table S-7.—Selected U.S. Paper Statistics, Annual Average 1977 and 1978-79 by Quarters

Economic indicators	First quarter		Second quarter		Third quarter		Fourth quarter		Annual average 1977
	1979[p]	1978	1979	1978	1979	1978	1979	1978[r]	
PAPER PRODUCTION, CONSUMPTION, INVENTORY AND PRICES									
Newsprint:									
Used by publisher[a].....thous.tons.....	1,731	1,669		1,837		1,684		1,917	*6,772
Publishers inventory[a].....do.....	745	792		843		865		776	796
Price, rolls, contract (BLS).....$.....	321.08	293.54		309.12		312.20		312.24	291.78
PAPER									
Production:[b]									
Groundwood, uncoated:									
Publication and printing.....short tons.....	365,991	372,425		371,775		273,169		338,995	*1,410,619
Coated, printing and converting:									
Coated, one side.....do.....	132,423	118,873		130,089		110,277		108,287	*451,348
Coated, two sides.....do.....	1,009,245	1,037,361	n.a.	1,025,857	n.a.	966,537	n.a.	1,022,549	*3,737,937
Book, uncoated:									
Publication and printing.....do.....	541,386	556,594		573,284		557,011		576,155	*2,021,279
Writing:									
Chemical wood pulp.....do.....	900,277	920,448		953,939		853,208		893,329	*3,465,715
Wholesale price index (BLS):									
Form bond, 12 lb.....1973 = 100.....	177.9	156.8		161.9		167.1		175.5	153.8
Book paper, No. 3 plain, offset.....1967 = 100.....	205.4	178.5		182.5		191.1		200.9	173.8
Woodbond.....do.....	175.2	157.7		162.6		166.4		172.2	156.5

Note: [r]Revised. [p]Preliminary. n.a.—not available. *Cumulative. [a]American Newspaper Publishers' Association; approximately 75% of total newsprint used. Consumption data are three months totals. [b]Bureau of the Census are three months totals. Exports generally equal imports, production usually equivalent to consumption.

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